APPLICATION FOR NEW LICENSE
MAJOR PROJECT – EXISTING DAM

AMENDED EXHIBITS A, E, & G

TRANSMITTAL LETTER
AMENDED EXHIBIT A – PROJECT DESCRIPTION
AMENDED EXHIBIT E – ENVIRONMENTAL REPORT
AMENDED EXHIBIT G – PROJECT MAPS

YUBA-BEAR HYDROELECTRIC PROJECT
FERC Project No. 2266-096

SECURITY LEVEL: PUBLIC

Chicago Park Powerhouse

Prepared by
Nevada Irrigation District
1036 West Main Street
Grass Valley, CA 95945
www.nidwater.com

June 2012

Application for a New License
Major Project – Existing Dam

Amended Exhibit A
Project Description

Yuba-Bear Hydroelectric Project
FERC Project No. 2266-096

Prepared by:
Nevada Irrigation District
1036 West Main Street
Grass Valley, CA 95945
www.nidwater.com

June 2012

Table of Contents

Table of Contents (continued)

List of Tables

List of Tables (continued)

List of Figures

AMENDED EXHIBIT A

Project Description

1.0 Introduction

In conformance with 18 CFR § 5.27, the Nevada Irrigation District (NID or Licensee) files with the Federal Energy Regulatory Commission (FERC or Commission) this Amended Exhibit A, Project Description, as part of NID's Amended Application (Amended Application) for NID's Yuba-Bear Hydroelectric Project, Project 2266 (Project).

This Amended Exhibit A fully replaces Exhibit A in NID's April 15, 2011 Application for License for a Major Project - Existing Dam (Final License Application, or FLA) for the Project.

This report is prepared in conformance with Title 18 of the Code of Federal Regulations (CFR), Subchapter B (Regulations under the Federal Power Act), Part 5 (Integrated Licensing Process). In particular, this report conforms to the regulations in 18 CFR § 5.18(a)(5)(iii), which require in part that the Application include an Exhibit A, Project Description, in conformance with 18 CFR § 4.51(f)(3). This Exhibit A describes, in detail, all existing and proposed Project facilities. As a reference, 18 CFR § 4.51(b) states:

> Exhibit A is a description of the project. This exhibit need not include information on project works maintained and operated by the U.S. Army Corps of Engineers, the Bureau of Reclamation, or any other department or agency of the United States, except for any project works that are proposed to be altered or modified. If the project includes more than one dam with associated facilities, each dam and the associated component parts must be described together as a discrete development. The description for each development must contain:
>
> (1) The physical composition, dimensions, and general configuration of any dams, spillways, penstocks, powerhouses, tailraces, or other structures, whether existing or proposed, to be included as part of the project;
>
> (2) The normal maximum surface area and normal maximum surface elevation (mean sea level), gross storage capacity, and usable storage capacity of any impoundments to be included as part of the project;
>
> (3) The number, type, and rated capacity of any turbines or generators, whether existing or proposed, to be included as part of the project;
>
> (4) The number, length, voltage, and interconnections of any primary transmission lines, whether existing or proposed, to be included as part of the project (see 16 U.S.C. 796(11));
>
> (5) The specifications of any additional mechanical, electrical, and transmission equipment appurtenant to the project; and
>
> (6) All lands of the United States that are enclosed within the project boundary described under paragraph (h) of this section (Exhibit G), identified and tabulated by legal subdivisions of a public land survey of the affected area or, in the absence of a public land survey, by the best available legal description. The tabulation must show the total acreage of the lands of the United States within the project boundary.

Besides this introductory material, this Amended Exhibit A includes six sections. The Project's location is described in Section 2.0. Section 3.0 describes other existing water projects in the basins in which the Project is located. Section 4.0 provides details of the existing Project facilities dimensions, physical features, and other pertinent information, arranged by Project Development. Section 5.0 describes the area within the FERC Project Boundary, including the legal description for all parcels owned by the United States. Section 6.0 describes Licensee's proposed new facilities. Section 7.0 provides a bibliography of the references consulted to develop this exhibit.

See Exhibit B for a description of Project operations, Exhibit C for a construction schedule for proposed new facilities, Exhibit D for costs and financing information, and Amended Exhibit E for a discussion of potential environmental effects and Licensee's proposed resource management measures. Project design drawings and maps are included in Exhibit F and Amended Exhibit G, respectively. Exhibit H contains a detailed description of the need for the electricity provided by the Project, the availability of electrical energy alternatives, and other miscellaneous information.

2.0 Project Location

The Yuba-Bear Hydroelectric Project is located in northern California in Sierra, Nevada, and Placer counties along the western slope of the Sierra Nevada geomorphic provinces. A portion of the Project is on United States land managed by the United States Department of Agriculture (USDA), Forest Service as part of the Tahoe National Forest (TNF), and a smaller portion on United States land administered by the United States Department of Interior (USDOI) Bureau of Land Management (BLM) as part of the Sierra Resource Management Area.

The Project ranges in elevation from French Lake at elevation 6,665 feet (ft) to Rollins Reservoir at elevation 2,171 ft.[1]

Project facilities are located in three major basins: 1) on the Middle Yuba River and on Wilson Creek, a tributary to the main stem, of the Middle Yuba River; 2) on Canyon Creek, Jackson Creek, Texas Creek, Clear Creek, Fall Creek, Trap Creek, and Rucker Creek, which are all tributaries to the South Yuba River; and 3) on the main stem of the Bear River. The Middle Yuba River, South Yuba River and Bear River are part of the Sacramento River basin, which drains into the Sacramento – San Joaquin Delta, and then into San Francisco Bay. Figure 1.0-1 illustrates the general regional location of the Project. The map does not display the FERC Project Boundary, which could not be shown at the map scale, but highlights the general region of the Project for contextual purposes.

[1] All elevation data in this exhibit are in National Geodetic Vertical Datum of 1929 (NGVD 29) unless otherwise specified.

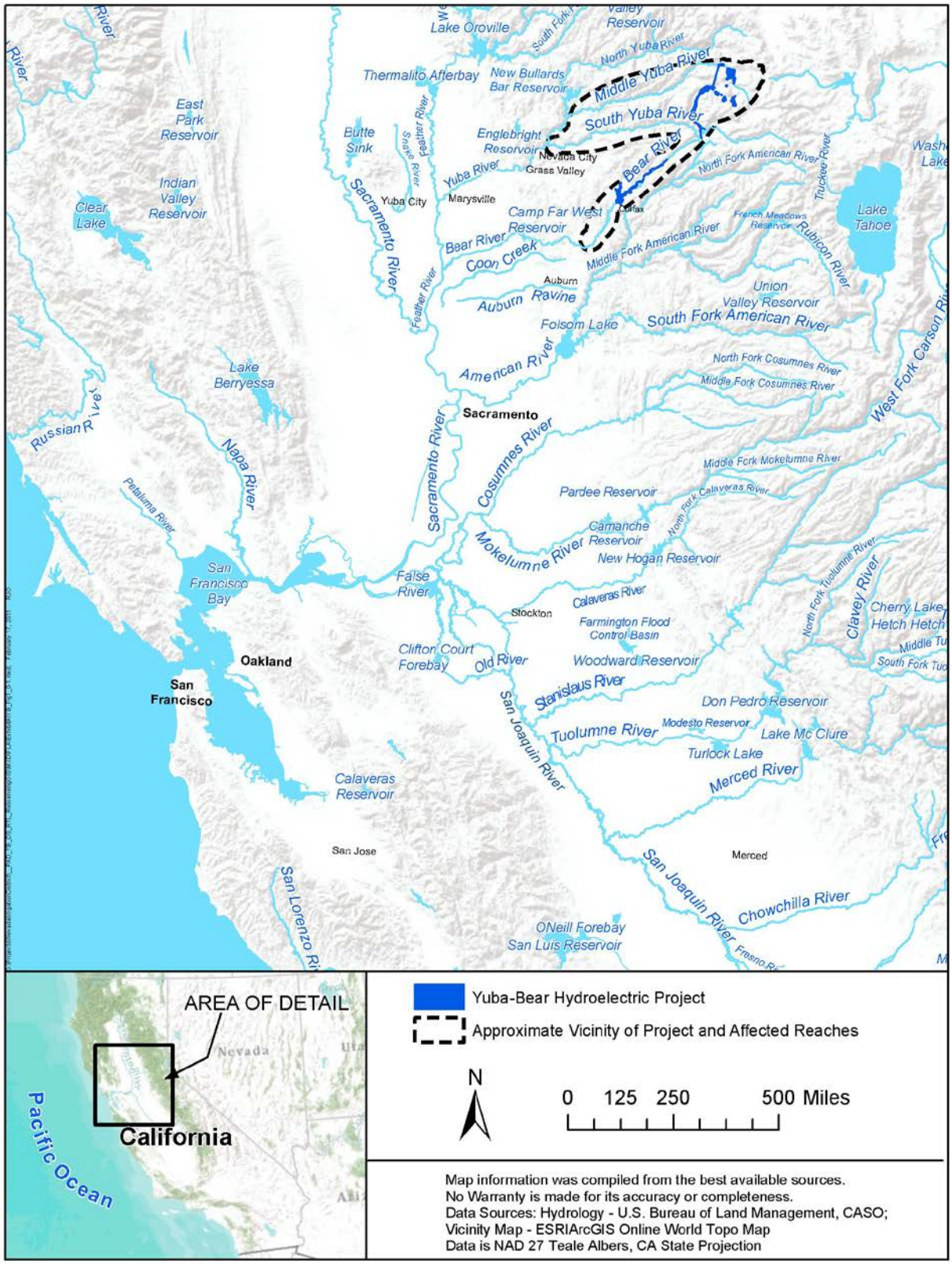


Figure 1.0-1. Yuba-Bear Hydroelectric Project area in relation to San Francisco Bay, California, and tributary watersheds.

3.0 Existing Water Projects in the Yuba and Bear River Basins

Including the Yuba-Bear Hydroelectric Project, there are eleven existing hydroelectric projects located in the Yuba River and Bear River basins. Together, these projects have a combined FERC-authorized capacity of 664.41 megawatts (MW). The Yuba-Bear Hydroelectric Project represents approximately 11 percent of the total capacity. Table 3.0-1 summarizes the existing FERC projects in the Yuba River and Bear River basins; these projects are also shown in Figure 3.0-1.

Table 3.0-1. Existing FERC licensed water projects in the Yuba and Bear River basins.

FERC Project Number	Project Name	License Holder[1]	Waterway	River Watershed	License Expiration Date	FERC Authorized Capacity, MW
1403	Narrows	PG&E	Yuba River	Yuba	January 2023	12.00
2246	Yuba River	YCWA	Yuba River	Yuba	March 2016	361.90
3075	Virginia Ranch Dam	BVID	Yuba River	Yuba	Exempt	1.00
6780	Deadwood Creek	YCWA	Deadwood Creek	Yuba	August 2038	19.63
5930	Scotts Flat	NID	Deer Creek	Yuba	Exempt	0.83
2266	Yuba-Bear	NID	Yuba, Bear Rivers and tributaries	Yuba, Bear	April 2013	79.32
2310	Drum-Spaulding	PG&E	South Yuba, Bear, North Fork American Rivers and tributaries	Yuba, Bear, North Fork American	April 2013	190.0
2981	Lake Combie	NID	Bear River	Bear	Exempt	1.50
7731	Combie North Aqueduct	NID	Bear River	Bear	Exempt	0.35
2997	Camp Far West	SSWD	Bear River	Bear	June 2021	6.80
7580	Vanjop No. 1	SSWD	Bear River	Bear	Exempt	0.42

[1] PG&E = Pacific Gas and Electric Company
YCWA = Yuba County Water Agency
BVID = Browns Valley Irrigation District
NID = Nevada Irrigation District
SSWD = South Sutter Water District

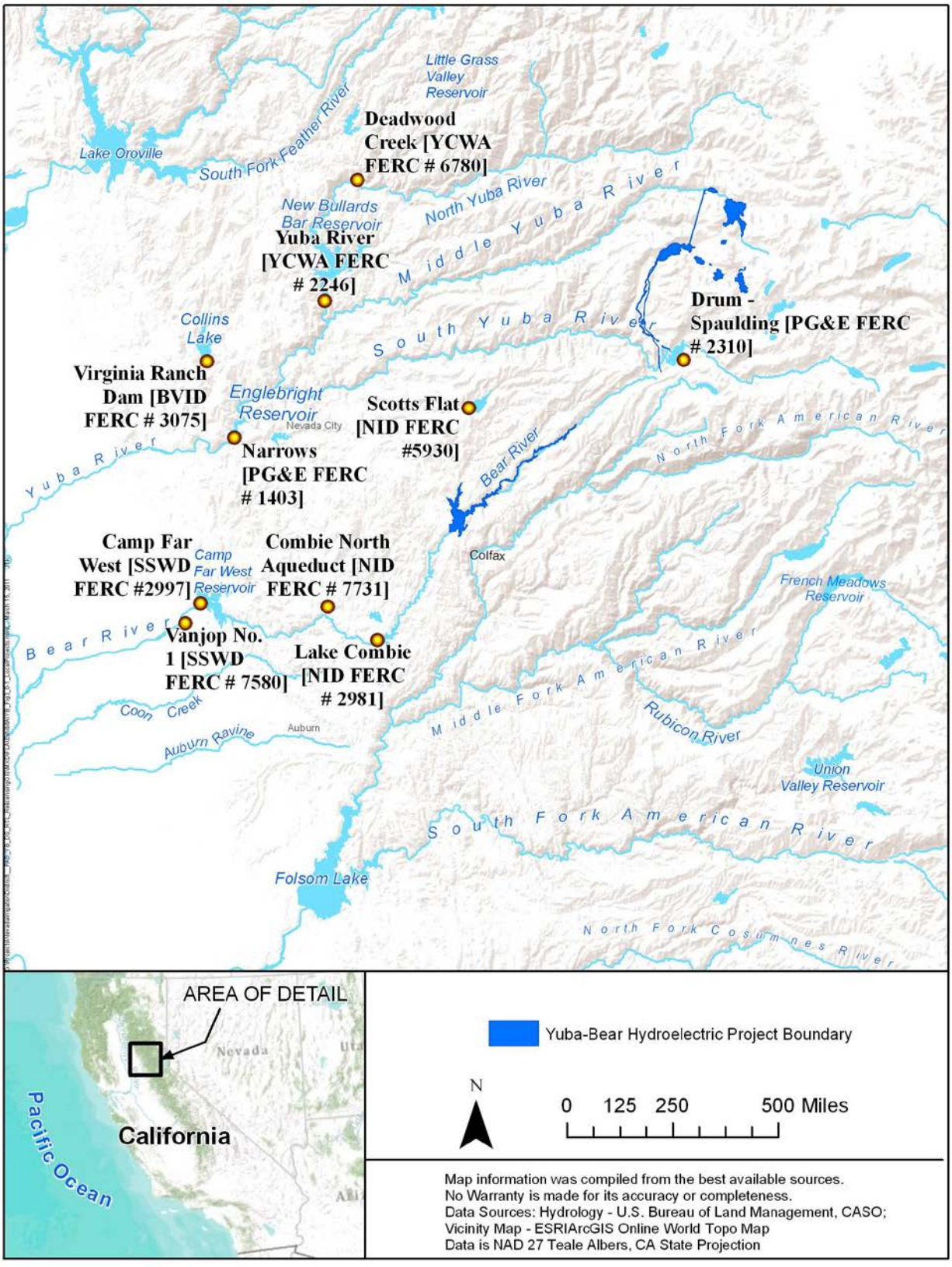


Figure 3.0-1. Existing FERC licensed water projects in the Yuba River and Bear River basins.

The main stem of the Yuba River includes two United States Army Corps of Engineers' (USACE) debris dams. The more upstream facility is Englebright Dam, which is located 24 miles upstream of the Yuba River's confluence with the Feather River, was constructed in 1941 by the California Debris Commission, a predecessor of USACE, which owns and operates the dam and related facilities. The primary purpose of the dam when constructed was to trap sediment derived from historical hydraulic mining operations in the Yuba River watershed. Hydraulic mining in the Sierra Nevada was halted in 1884 but resumed on a limited basis until the 1930s. Although no hydraulic mining in the upper Yuba River watershed resumed after construction of the dam, the historical mining sites continued to contribute sediment to the river, and sediment that had settled into the upper reaches of the Yuba River was gradually being carried downstream. The dam forms USACE's Englebright Reservoir, which is about 9 miles long and has a useable storage capacity of about 70,000 ac-ft.

Daguerre Point Dam, located 12.6 miles downstream of Englebright Dam and 11.4 miles upstream of the Yuba River's confluence with the Feather River, was also constructed by the California Debris Commission to prevent hydraulic mining debris from the Yuba River watershed from flowing into the Feather and Sacramento rivers, thereby reducing their channel conveyance. The dam, which was constructed in 1906 and rebuilt in 1964 following damage from floods, has no appreciable storage.

4.0 Existing Project Facilities and Features

On June 24, 1963, the Federal Power Commission, predecessor to FERC, granted to NID an initial license to construct and operate the Yuba-Bear Hydroelectric Project. The initial license had a term that expired on April 30, 2013, and called for the construction or enlargement of 10 reservoirs and the construction of two powerhouses. On October 14, 1977, FERC approved NID's request to amend the initial license to include the construction and operation of the Rollins Powerhouse and on December 17, 1982, FERC approved NID's request to amend the initial license to include the construction and operation of the Bowman Powerhouse and Bowman-Spaulding Transmission Line. Commercial operation of the original two units began on November 21, 1965. The Rollins Powerhouse began commercial operation on August 20, 1980, and the Bowman Powerhouse began commercial operation on September 19, 1986.

Today, the existing Project consists of four developments - Bowman, Dutch Flat, Chicago Park, and Rollins - each of which is described below. The existing Project can store and use 218,700 ac-ft of water and has generated an average of about 354.3 gigawatt-hours (GWh) of power annually from 1972 through 2007 (periods for Rollins and Bowman powerhouses are shorter as they came online in 1981 and 1986, respectively). The total installed capacity is 79.32 MW and the dependable capacity, based on Licensee's No-Action Alternative, is 44.2 MW. Table 4.0-1 and Table 4.0-2 summarize key information for Project turbine/generators and reservoirs/impoundments, respectively. Figure 4.0-1 provides a flow schematic of Project facilities. Figure 4.0-2, located at the end of this exhibit, shows Project facilities. Existing Project facilities and features are described below by development.

Table 4.0-1. Key information regarding Yuba-Bear Hydroelectric Project existing powerhouses.

Powerhouse	Unit Number	Turbine Type	Rated Head (ft)	Rated Hydraulic Capacity (cfs)		Installed Capacity (MW)		Historical Average Annual Energy (GWh)[3]
				Minimum	Maximum	Nameplate Rating[1]	Dependable[2]	
Bowman	1	Francis	135	45	313	3.60	0.8	12.8
Dutch Flat No. 2	1	Francis	581	80	600	24.57	7.9	108.7
Chicago Park	1	Francis	480	125	1,100	39.00	35.2	161.9
Rollins	1	Francis	208	142	840	12.15	2.0	70.6
Total	**4**	--	--	--	--	**79.32**	**44.2**	**354.3**

1 At 0.9 Power Factor.

2 Dependable capacity calculations based on average daily power generation data as estimated in the Licensees' No-Action Alternative Operations Model run over the period of July-August 1977, which represents a period of adverse water conditions coupled with high demand for electricity.

3 Values represent historical average annual energy from 1972-2007 with the exception of Bowman Powerhouse, which is calculated from 1986-2007, and Rollins Powerhouse, which is calculated from 1981-2007. These values differ from the No-Action Alternative average annual energy statistics from the Licensee's Operations Model, due both to differences in period of analysis and in operating assumptions over the term of the analysis. For more information regarding Licensees' Operations Model, see Exhibit E, Section 6.2.

Table 4.0-2. Key information regarding Yuba-Bear Hydroelectric Project existing reservoirs and impoundments.

Project Reservoir	NMWSE[1] (ft)	Gross Storage[2] (ac-ft)	Usable Storage[2] (ac-ft)	Surface Area[2] (ac)	Maximum Depth[2] (ft)	Shoreline Length[2] (mi)	Drainage Area (sq mi)
MIDDLE YUBA RIVER SUB-BASIN							
Jackson Meadows Reservoir[3]	6,036.0	67,435	64,641	1,008	144	9.9	37.3
Milton Diversion Dam Impoundment	5,690.0	275	275	100	37	1.3	39.8
CANYON CREEK SUB-BASIN							
Jackson Lake	6,592.67	1,330	975	52	54	1.1	0.70
French Lake	6,660.0	13,940	13,940	356	65	5.3	4.82
Faucherie Lake	6,123.0	3,980	3,740	150	42	2.4	9.29
Sawmill Lake	5,860.0	3,030	3,030	113	55	2.6	17.0
Bowman Lake[3]	5,562.0	68,363	68,363	827	162	7.6	28.5
BEAR RIVER SUB-BASIN							
Dutch Flat No. 2 Forebay	3,330.0	177.9	159.8	8	61	0.5	0.10
Dutch Flat Afterbay[3]	2,741.0	1,359.2	1,359.2	38	170	1.9	21.2
Chicago Park Forebay	2,716.0	103	103	7	31	0.7	Negligible
Rollins Reservoir[3]	2,171.0	58,682	54,453	788	209	19.0	104
Total	--	**218,739**	**212,847**	--	--	--	--

1 Normal Maximum Water Surface Elevation

2 At Normal Maximum Water Surface Elevation

3 Storage and area statistics based on Licensee's bathymetric surveys in 2007-2008.

Page Left Blank

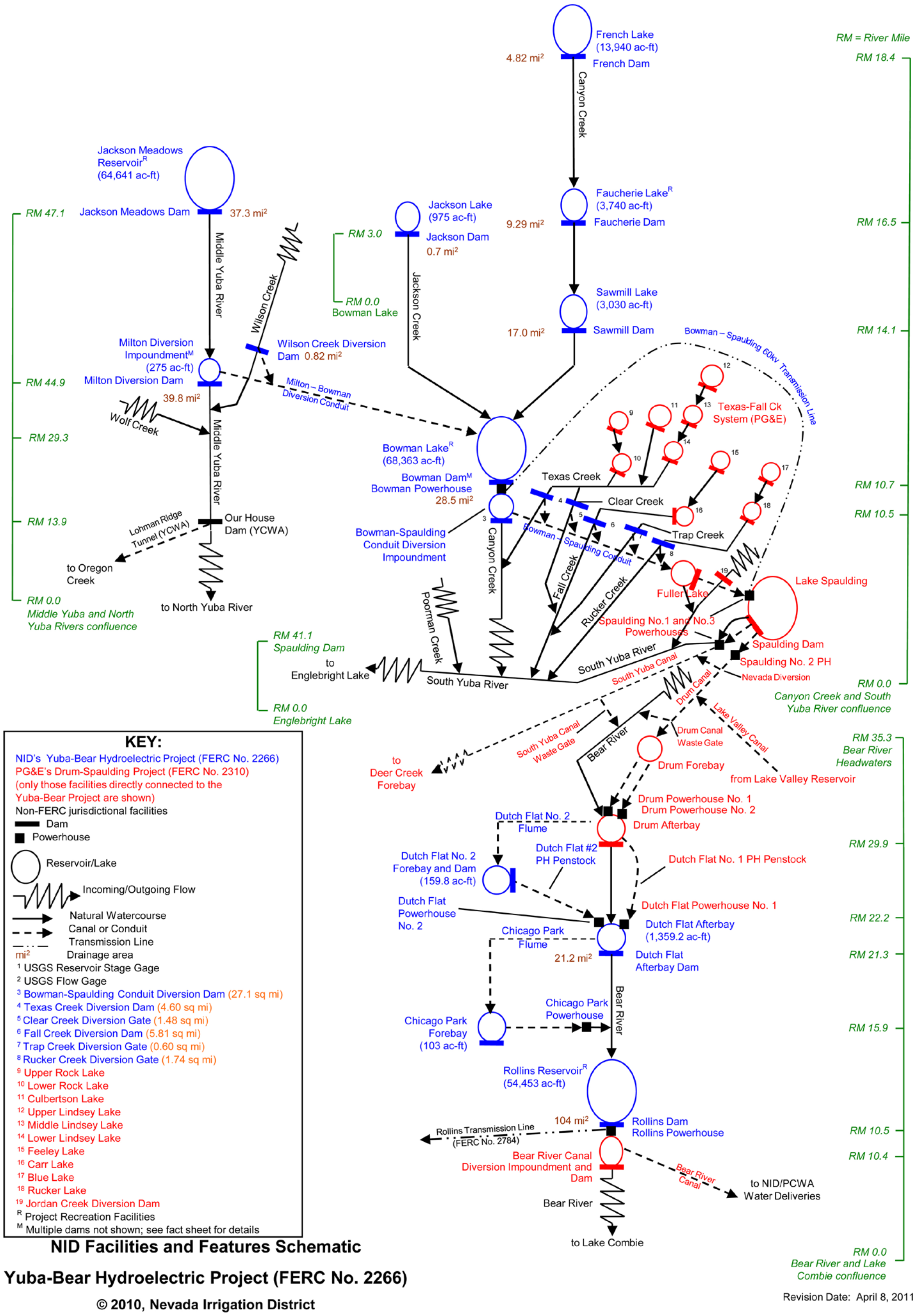


Figure 4.0-1. Yuba-Bear Hydroelectric Project flow schematic.

Page Left Blank

4.1 Bowman Development

4.1.1 Developmental Facilities

The Bowman Development is located primarily on the Middle Yuba River and Canyon Creek, a tributary to the South Yuba River, and includes the uppermost Project features that range from French Lake Dam at an elevation of 6,665.0 ft (dam crest) to the Bowman Powerhouse at an elevation of 5,396.9 (turbine centerline) ft. The Bowman Development includes seven reservoirs/impoundments, including three of the four major Project storage reservoirs (Jackson Meadows, Bowman Lake, and French Lake); one conduit (Milton-Bowman); one transmission line (Bowman-Spaulding); and one powerhouse (Bowman). Table 4.1.1-1 summarizes the dimensions, physical features, and other pertinent information for each facility or feature, excluding recreation facilities associated with the Bowman Development that are described in Section 4.1.1. Representative photographs of the non-recreation facilities and features are provided in Figure 4.1.1-1.

Table 4.1.1-1. Description of Yuba-Bear Hydroelectric Project existing developmental facilities and features – Bowman Development.

JACKSON MEADOWS DAM AND RESERVOIR	
River Mile	47.1 (Middle Yuba River)
Construction Period	1963-1965
Placed in Service	1965
Jackson Meadows Dam	--
Hazard Classification	High
Type	Zoned embankment with a core, filter zones, and rockfill shells
Height	195 feet
Crest	--
Elevation	El. 6,044.5 feet
Width	31 feet
Length	1,530 feet
Base	--
Elevation	El. 5,904.1 feet
Width	650 feet, approximately
Slope	--
Upstream Face (Horizontal to Vertical)	2.5H:1V
Downstream Face (Horizontal to Vertical)	1.4H:1V
Fish Ladder	--
Jackson Meadows Dam Spillway	--
Type	Gated ogee spillway
Crest	--
Elevation	El. 6,021 feet
Length	102.0 feet
Control	Three bays each with a 30-feet-wide by 15-feet-high radial gate
Hoist Type	--
Maximum Discharge	40,000 cfs at zero freeboard
Jackson Meadows Dam Low-Level Outlet	--
Number, Size, & Control	One outlet: 12-foot-diameter horseshoe tunnel, 236 feet long, connected to a 363-foot-long section of tunnel containing one 42-inch-diameter pipe (controlled by a 36-inch-diameter Howell-Bunger valve) and one 24-inch-diameter pipe. Both pipes controlled with butterfly valves.
Outlet Invert Elevation	El. 5,933.0 feet

Table 4.1.1-1. (continued)

JACKSON MEADOWS DAM AND RESERVOIR (continued)	
Maximum Capacity	760.1 cfs
Trash Rack	Four racks around intake tower. Two racks are 10 feet high by 8 feet wide and two racks are 10 feet high by 12 feet wide.
Jackson Meadows Reservoir	---
Normal Maximum Water Surface Elevation	El. 6,036 feet
Normal Minimum Water Surface Elevation	El. 5,980 feet
Drainage Area	37.3 square miles
Gross Storage at normal maximum water surface el.	67,435 acre-feet [based on Licensee's 2007-2008 bathymetric studies]
Usable Storage	64,641 acre-feet [based on Licensee's 2007-2008 bathymetric studies]
Surface Area at normal maximum water surface el.	1,008 acres
Length	2.8 miles
Width	1.4 miles
Maximum Depth	144 feet
Shoreline Length	9.9 miles
Closest Upstream Facility	No upstream facilities
Closest Downstream Facility	Milton Reservoir, part of the Yuba-Bear Hydroelectric Development, 1.6 miles downstream
MILTON DAM AND IMPOUNDMENT	
River Mile	44.9 (Middle Yuba River)
Construction Period	1926-1927
Placed in Service	1927
Milton Main Dam	--
Hazard Classification	Low
Type	Concrete arch dam (acts as ungated and uncontrolled spillway)
Height	37 feet
Crest	--
Elevation	El. 5,690 feet
Width	2.0 feet
Length	286 feet
Base	--
Elevation	El. 5,653 feet
Width	8.9 feet
Slope	--
Upstream Face (Horizontal to Vertical)	Vertical
Downstream Face (Horizontal to Vertical)	Varies
Maximum Dam Discharge	approximately 50,000 cfs
Milton Main Dam Low-Level and Auxiliary Outlet	--
Number, Size, & Control	One 24-inch-diameter iron pipe controlled by a 24-inch slide gate (low level); One 8-inch-diameter pipe controlled by an 8-inch slide gage (auxiliary)
Outlet Invert Elevation	El. 5,663 feet (low level); El. 5,673 feet (auxiliary)
Maximum Capacity	113 cfs (low level); 5 cfs (auxiliary)
Trash Rack	5 feet high by 6 feet wide
Milton South Dam[1]	--
Hazard Classification	Low
Type	Concrete arch dam
Height	30 feet
Crest	--
Elevation	El. 5,696 feet
Width	2 feet
Length	140 feet
Base	--
Elevation	El. 5,666 feet
Width	4.2 feet
Slope	--
Upstream Face (Horizontal to Vertical)	Vertical

Table 4.1.1-1. (continued)

MILTON DAM AND IMPOUNDMENT (continued)	
Downstream Face (Horizontal to Vertical)	Varies
Maximum Dam Discharge	450 cfs (via Milton-Bowman pipe intake)
Trash Rack	6 feet high in a 9-foot radius attached to the Milton-Bowman pipe intake.
Milton Diversion Impoundment	--
Normal Maximum Water Surface Elevation	El. 5,690.0 feet
Normal Minimum Water Surface Elevation	El. 5,686.0 feet
Drainage Area	39.8 square miles
Gross Storage at normal maximum water surface el.	275 acre-feet
Usable Storage	275 acre-feet
Surface Area at normal maximum water surface el.	100 acres
Length	0.4 miles
Width	0.2 miles
Maximum Depth	37 feet
Shoreline Length	1.3 miles
Closest Upstream Facility	Jackson Meadows Reservoir, part of the Yuba-Bear Hydroelectric Development, 1.6 miles upstream
Closest Downstream Facility	Milton-Bowman Diversion Conduit, part of the Yuba-Bear Hydroelectric Development, immediately downstream
MILTON-BOWMAN DIVERSION CONDUIT	
Description	Diverts flow from Milton Reservoir to the Bowman Reservoir.
Sizes, Length, and Construction	3,315-foot-long, 84-inch-diameter, concrete pipeline flowing to a 22,623-foot-long, 7.5-foot-high by 9.5-foot-wide tunnel
Upstream Invert Elevation	El. 5,680 feet
Maximum Flow Capacity	450 cfs
Closest Upstream Facility	Milton South Dam, part of the Yuba-Bear Hydroelectric Development, immediately upstream
Closest Downstream Facility	Bowman Lake, part of the Yuba-Bear Hydroelectric Development, approximately 5 miles downstream via the Milton-Bowman Diversion Conduit
WILSON CREEK DIVERSION DAM AND CONDUIT	
River Mile	0.5 (Wilson Creek)
Construction Period	unknown
Placed in Service	unknown
Type	Grouted rubble (acts as ungated and uncontrolled spillway)
Height	3 feet
Elevation	El. 5,690 feet
Maximum Diversion Capacity	3.5 cfs
JACKSON DAM AND RESERVOIR	
Location/Legal Description	Latitude 39° 27' 52" Longitude 120° 33' 49" in SW 1/4 T 19N, R 13E in Nevada County about 9.6 miles east of Graniteville
River Mile	3.0 (Jackson Creek)
Construction Period	1941-1942
Jackson Dam	--
Hazard Classification	High
Type	Homogeneous earth embankment dam
Height	28 feet
Crest	--
Elevation	El. 6,596.0 feet
Width	8 feet
Length	772 feet
Base	--
Elevation	El. 6,568 feet, approximately
Width	134 feet, approximately
Slope	--
Upstream Face (Horizontal to Vertical)	2.5H:1V
Downstream Face (Horizontal to Vertical)	2.0H:1V

Table 4.1.1-1. (continued)

JACKSON DAM AND RESERVOIR (continued)	
Jackson Dam Spillway	--
Type	Sharp crested weir
Crest	--
Elevation	El. 6,592.67 feet
Length	50.0 feet
Control	Uncontrolled
Maximum Discharge	1,481 cfs
Jackson Dam Low-Level Outlet	--
Number, Size, & Control	One 18-inch-diameter steel pipe controlled by an 18-inch slide gate operated by hand from the control house on the dam crest
Outlet Invert Elevation	El. 6,570 feet
Maximum Capacity	60 cfs
Trash Rack	30-inch rail trash rack
Jackson Lake	--
Normal Maximum Water Surface Elevation	El. 6,592.67 feet
Normal Minimum Water Surface Elevation	El. 6,570.0 feet
Drainage Area	0.70 square miles
Gross Storage at normal maximum water surface el.	1,334 acre-feet
Usable Storage	975 acre-ft
Surface Area at normal maximum water surface el.	52 acres
Length	0.4 miles
Width	0.3 miles
Maximum Depth	54 feet
Shoreline Length	1.1 miles
Closest Upstream Facility	No upstream facilities
Closest Downstream Facility	Bowman Lake, part of the Yuba-Bear Hydroelectric Development, 2.9 miles downstream
FRENCH DAM AND RESERVOIR	
River Mile	18.4 (Canyon Creek)
Construction Period	First stage in mid-1800's, second stage 1940's
French Dam	--
Hazard Classification	High
Type	Rockfill dam with reinforced gunite on upstream face
Height	70 feet
Crest	--
Elevation	Dam crest El. 6,665 feet
Width	15 feet
Length	200 feet
Base	--
Elevation	6,598.5 feet
Width	210 feet approximately
Slope	--
Upstream Face (Horizontal to Vertical)	1H:1V
Downstream Face (Horizontal to Vertical)	1.4H:1V
French Dam Spillway	--
Type	Weir wall
Crest	--
Elevation	El. 6,660.28 feet
Length	100 feet
Control	Uncontrolled
Maximum Discharge	3,810 cfs at zero freeboard
French Dam Low-Level Outlet	--
Number, Size, & Control	One outlet: 4-foot by 5-foot-high box culvert formed in wet rubble masonry on the bottom and two sides capped with a 15-inch thick reinforced concrete slab "Outlet Trunk." Controlled by a 42-inch square gate at the upstream face, hydraulically operated from control house on dam crest.

Table 4.1.1-1. (continued)

FRENCH DAM AND RESERVOIR (continued)	
Outlet Invert Elevation	El. 6,594.9 feet
Maximum Capacity	650 cfs (estimated)
Trash Rack	Grizzly of unknown dimensions
French Lake	--
Normal Maximum Water Surface Elevation	6,660.28 feet
Normal Minimum Water Surface Elevation	6,608 feet
Drainage Area	4.82 square miles
Gross Storage at normal maximum water surface el.	13,940 acre-feet
Usable Storage	13,940 acre-feet
Surface Area at normal maximum water surface el.	356 acres
Length	1.6 miles
Width	0.5 miles
Maximum Depth	65 feet
Shoreline Length	5.3 miles
Closest Upstream Facility	No upstream facilities
Closest Downstream Facility	Faucherie Lake, part of the Yuba-Bear Hydroelectric Development, 1.3 miles downstream
FAUCHERIE DAM AND RESERVOIR	
River Mile	16.5 (Canyon Creek)
Construction Period	Originally 1880's, rebuilt in 1963-1964
Placed in Service	1964
Faucherie Dam	--
Hazard Classification	High
Type	Zoned embankment with sloping core and filter zones dam
Height	65 feet
Crest	--
Elevation	El. 6,131 feet
Width	24 feet
Length	665 feet
Base	--
Elevation	El. 6,064.4 feet
Width	230 feet
Slope	--
Upstream Face (Horizontal to Vertical)	2.5H:1V
Downstream Face (Horizontal to Vertical)	1.4H:1V
Faucherie Dam Spillway	--
Type	Concrete sharp crested weir
Crest	--
Elevation	El. 6,123 feet
Width	5.5 feet
Length	150 feet
Control	Uncontrolled
Maximum Discharge	10,000 cfs at zero freeboard
Faucherie Dam Low-Level Outlet	--
Number, Size, & Control	Two 24-inch No. 265 series sluice gates with one integral 6-inch sluice gate. Sluice gates open by single stem hydraulic cylinders.
Outlet Invert Elevation	6,090 feet
Maximum Capacity	288.5 cfs
Trash Rack	Metal rack, 8 feet 4 inches by 8 feet 4 inches
Faucherie Lake	--
Normal Maximum Water Surface Elevation	El. 6,123 feet
Normal Minimum Water Surface Elevation	El. 6,090 feet
Drainage Area	9.29 square miles
Gross Storage at normal maximum water surface	3,980 acre-feet
Usable Storage	3,740 acre-feet

Table 4.1.1-1. (continued)

FAUCHERIE DAM AND RESERVOIR (continued)	
Surface Area at normal maximum water surface el.	150 acres
Length	0.7 miles
Width	0.6 miles
Maximum Depth	42 feet
Shoreline Length	2.4 miles
Closest Upstream Facility	French Lake, part of the Yuba-Bear Hydroelectric Development, 1.3 miles upstream
Closest Downstream Facility	Sawmill Lake, part of the Yuba-Bear Hydroelectric Development, 1.5 miles downstream
SAWMILL DAM AND RESERVOIR	
River Mile	14.1 (Canyon Creek)
Construction Period	1910 and enlarged in 1941
Sawmill Dam	--
Hazard Classification	Low
Type	Rockfill dam with gunite upstream face and derrick placed stone on downstream face
Height	60 feet
Crest	--
Elevation	Dam crest El. 5,865 feet, parapet El. 5,867 feet
Width	5 feet
Length	384 feet
Base	--
Elevation	El. 5,805 feet
Width	155 feet, approximately
Slope	--
Upstream Face (Horizontal to Vertical)	1H:1V
Downstream Face (Horizontal to Vertical)	1H:1V
Sawmill Dam Spillway	--
Type	Overflow
Crest	--
Elevation	El. 5,860 feet
Length	230 feet
Control	Uncontrolled
Maximum Discharge	15,000 cfs at zero freeboard
Sawmill Dam Low-Level Outlets	--
Number, Size, & Control	One 24-inch-diameter steel pipe with a 24-inch-diameter slide gate operated manually from the dam crest
Outlet Invert Elevation	El. 5,805 ft
Maximum Capacity	160 cfs
Trash Rack	Steel rail trash rack
Sawmill Lake	--
Normal Maximum Water Surface Elevation	El. 5,860 feet
Normal Minimum Water Surface Elevation	El. 5,805 feet
Drainage Area	17.0 square miles
Gross Storage at normal maximum water surface el.	3,030 acre-feet
Usable Storage	3,030 acre-feet
Surface Area at normal maximum water surface el.	113 acres
Length	0.8 miles
Width	0.4 miles
Maximum Depth	55 feet
Shoreline Length	2.6 miles
Closest Upstream Facility	Faucherie Lake, part of the Yuba-Bear Hydroelectric Development, 1.5 miles upstream
Closest Downstream Facility	Bowman Lake, part of the Yuba-Bear Hydroelectric Development, 0.8 miles downstream

Table 4.1.1-1. (continued)

BOWMAN DAM AND RESERVOIR	
River Mile	10.7 (Canyon Creek)
Construction Period	North Dam: Several major construction periods; 1869, 1876, and 1926-1927 South Dam: 1926-1928
Placed in Service	1928
Bowman North Dam[2]	--
Hazard Classification	High
Type	Rockfill
Height	175 feet
Crest	--
Elevation	Dam crest El. 5,567 feet, parapet wall 5,569.5 feet
Width	15 feet
Length	700 feet
Base	--
Elevation	El. 5,400 feet, approximately
Width	350 feet, approximately
Slope	--
Upstream Face (Horizontal to Vertical)	0.75H:1.0V from base to El. 5,537 feet; 0.5H:1V from El. 5,537 feet to crest
Downstream Face (Horizontal to Vertical)	1.4H:1V
Bowman North Dam Low-Level Outlet and Penstock Intake	--
Number & Size	One outlet consisting of a 62-inch-ID steel pipe that bifurcates into two pipes just past the downstream toe of the dam. One pipe is the 62-inch-ID powerhouse penstock. The other pipe is a 70-inch-ID pipe going to an outlet valve control house. Just prior to the control house, the 70-inch pipe bifurcates into two pipes. Both pipes are reduced down to 42 inches ID.
Outlet Invert Elevation	El. 5,400 feet
Control	Intake controlled by a hydraulically operated Broome gate. Outlet controlled by one 24-inch bypass butterfly valve; one 8-inch gate valve drain pipe; and one 30-inch bypass butterfly valve.
Maximum Capacity	400 cfs
Trash Rack	3 metal racks, 6 feet wide by 7.5 feet high
Bowman South Dam	--
Hazard Classification	High
Type	Concrete arch
Height	135 feet
Crest	--
Elevation	El. 5,563.6 feet
Width	7 feet, approximately
Length	400 feet
Base	--
Elevation	El. 5,435 feet, approximately
Width	65 feet
Slope	--
Upstream Face (Horizontal to Vertical)	Vertical
Downstream Face (Horizontal to Vertical)	Varies, near vertical
Bowman South Dam Spillway	--
Type	Concrete gated and ungated spillway sections
Crest	--
Elevation	Two levels: Five uncontrolled overflow bays crest El. 5,563.6 feet and seven radial gates crest El. 5,557.2 feet
Length	175 feet
Control	Seven 140-inch by 70-inch Calico radial gates and five uncontrolled overflow bays
Hoist Type	Hoists operated with portable power packs or manually
Maximum Discharge	Gated spillway: 4,000 cfs at water surface El. 5,563 feet Ungated spillway: 25,000 cfs at water surface El. 5,567 feet

Table 4.1.1-1. (continued)

BOWMAN DAM AND RESERVOIR (continued)	
Bowman South Dam Low-Level Outlet	
Number, Size & Control	None
Bowman Lake	--
Normal Maximum Water Surface Elevation	El. 5,562 feet
Normal Minimum Water Surface Elevation	El. 5,400 feet
Drainage Area	28.5 square miles
Gross Storage at normal maximum water surface el.	68,363 acre-feet [based on Licensee's 2007-2008 bathymetric studies]
Usable Storage	68,363 acre-feet [based on Licensee's 2007-2008 bathymetric studies]
Surface Area at normal maximum water surface el.	827 acres
Length	2.6 miles
Width	0.8 miles
Maximum Depth	162 feet
Shoreline Length	7.6 miles
Closest Upstream Facility	Sawmill Lake, part of the Yuba-Bear Hydroelectric Development, 0.8 miles upstream
Closest Downstream Facility	Bowman Powerhouse, part of the Yuba-Bear Hydroelectric Development, immediately downstream
BOWMAN PENSTOCK	
Bowman Penstock	--
Number and Type	One submerged
Construction	Concrete encased, interior coating only
Size	62-inch-diameter
Length	77 feet 2 inches
Maximum Flow Capacity	375 cfs
BOWMAN POWERHOUSE	
Bowman Powerhouse	--
Location	Immediately downstream of Bowman North Dam
Placed in Service (Began Commercial Operation)	September 19, 1986
Plant Operation	Manual
Normal Type of Operation	Base loaded
Structure	--
Type	Indoor powerhouse, reinforced concrete
Construction Period	1984-1986
Approximate Size	41feet by 39 feet below ground, 40 feet by 23 feet above ground
Turbine	--
Number of Units	One
Type	Horizontal Francis
Manufacturer	Axel Johnson Inc.
Upgrades	N/A
Nameplate Output	4,452 HP
Nameplate Capability	3,600 kW
Nameplate Rated Head	135 feet
Speed	450 RPM
Nameplate Rated Flow	313 cfs
Turbine Centerline Elevation	5,396.90 feet
Generator	--
Type	3-phase synchronous generator, Type 5000-A
Manufacturer	Yaksawa Electric Manufacturing Co.
Upgrades	N/A
Nameplate Output	4,000 KVA
Nameplate Capability	3,600 kW
Power Factor	0.9
Voltage	4,160 Volts
Speed	450 RPM

Table 4.1.1-1. (continued)

BOWMAN POWERHOUSE (continued)	
Governor	--
Type	Hydraulic power control unit
Manufacturer	Axel Johnson
Closest Upstream Facility	Bowman North Dam, part of the Yuba-Bear Hydroelectric Development, immediately upstream
Closest Downstream Facility	Bowman-Spaulding Conduit Diversion Dam, part of the Yuba-Bear Hydroelectric Development, immediately downstream.
BOWMAN SWITCHYARD	
Bowman Switchyard	--
Location	North of powerhouse
Size	50 feet by 50 feet
Transformer Type	Westinghouse – OPT oil filled OA/FA 1254. 3 phase, 65º C Rise
Transformer Nameplate Rating	HV – 60 Kv LV – 4160v 5200 / 4000 KVA
Maximum Capacity	--
Voltage Rating	H.T. – 350 Kv L.T. – 60 Kv
High Voltage Breakers	ACB 4.16 Kv 1200A 250 MVA
Associated Transmission Line within FERC License	Bowman-Spaulding 60 kV, FERC 2266

[1] Milton South Dam does not have a low-level outlet. The Milton-Bowman Diversion Conduit is the outlet from this dam.

[2] The Bowman North Dam does not have a spillway; there are two spillways on the Bowman South Dam, one gated and one uncontrolled.

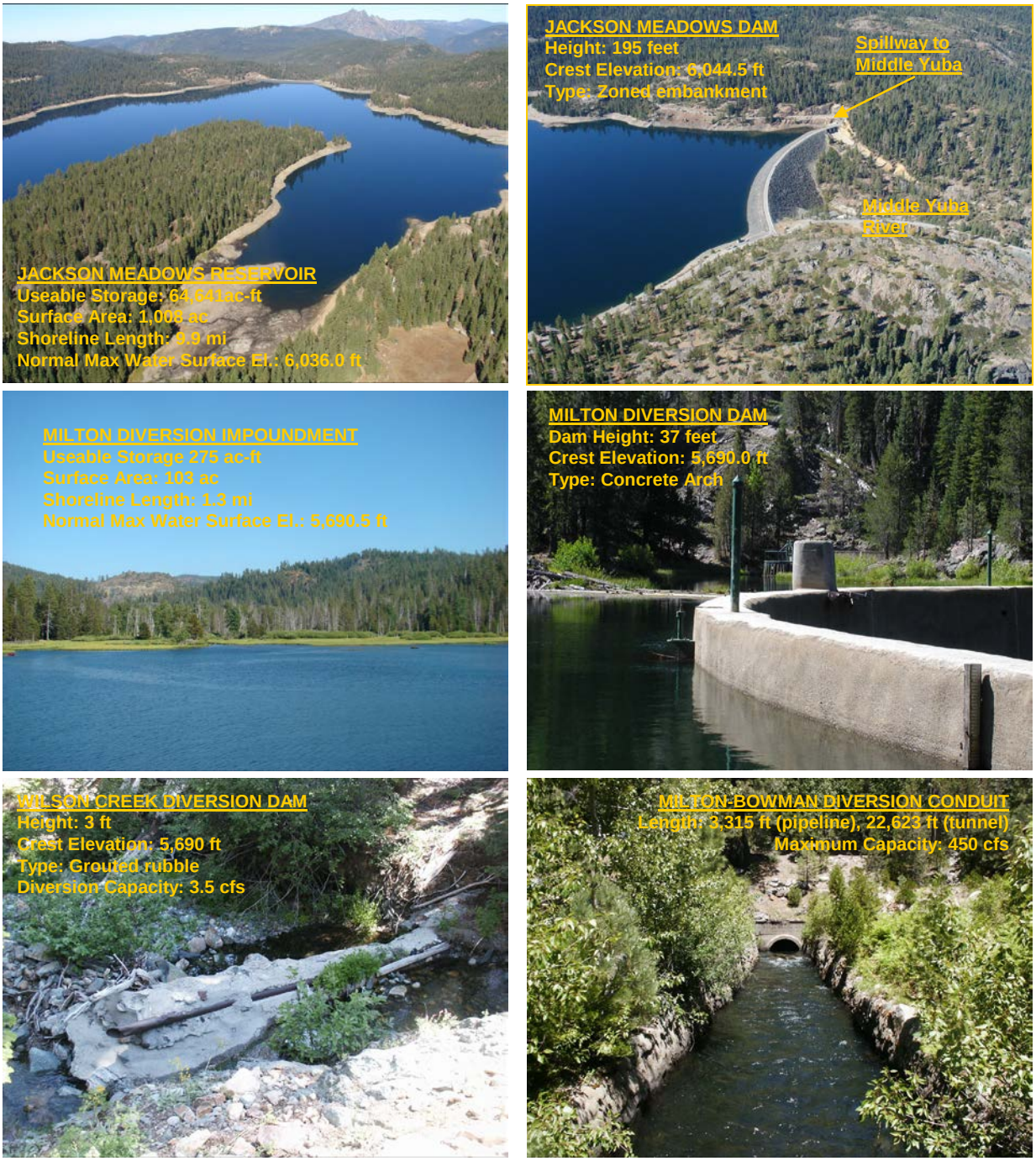


Figure 4.1.1-1. Views of Bowman Development facilities and features.

Amended Application

Figure 4.1.1-1. (continued)

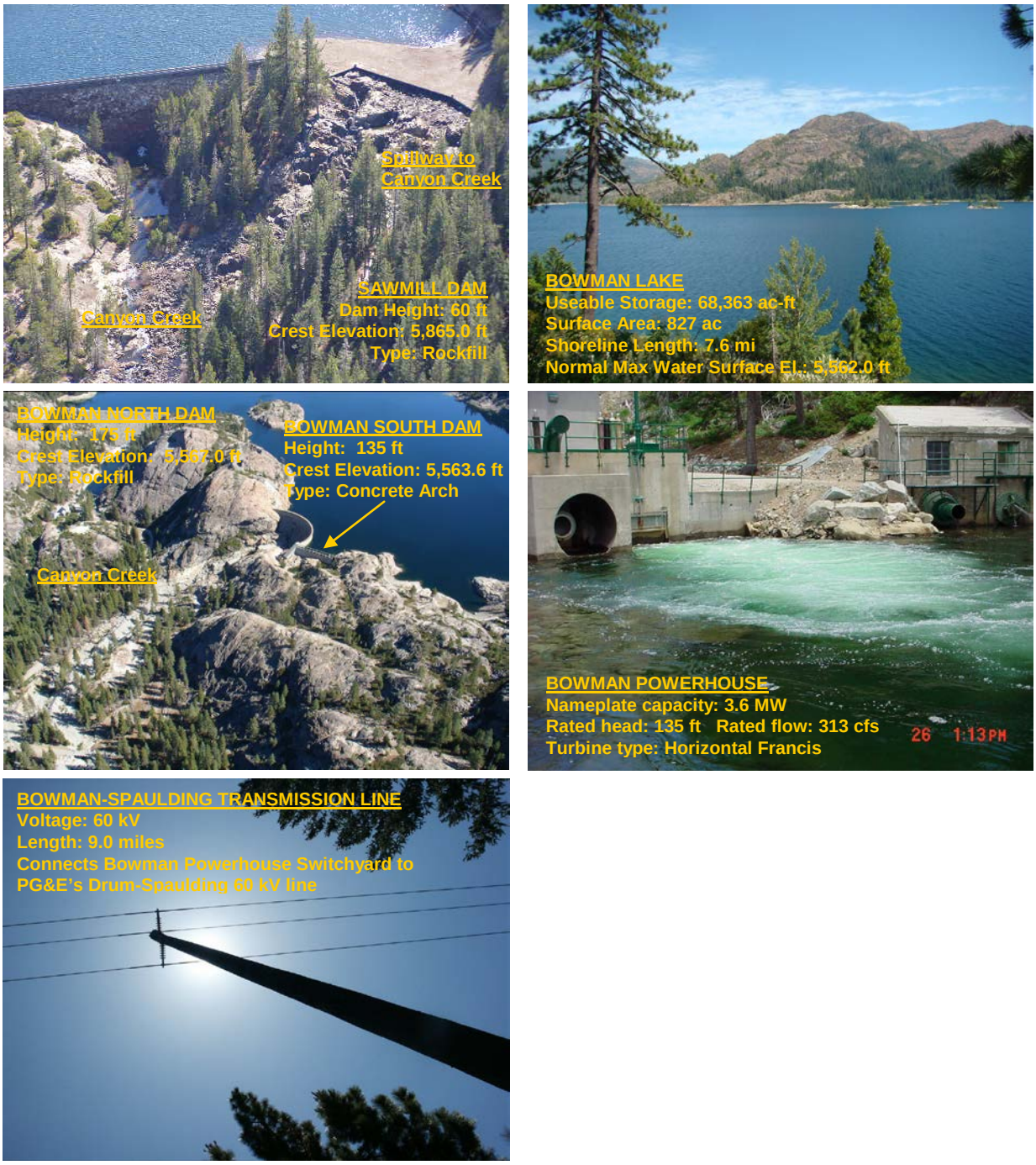


Figure 4.1.1-1. (continued)

4.1.2 Recreation Facilities

The Bowman Development includes recreation facilities at Jackson Meadows Reservoir, Milton Diversion Dam Impoundment, Faucherie Lake, and Bowman Lake. Each of the facilities by reservoir/impoundment is described below.

4.1.2.1 Jackson Meadows Reservoir Recreation Facilities

Jackson Meadows Reservoir recreation facilities consist of eight campgrounds, two picnic areas, and two boat launches. As a whole, the recreation facilities provide overnight camping at 131 developed campsites, five group camping sites (150 persons-at-one-time, or PAOT), and 10 boat-in campsites. In addition, the recreation facilities provide 17 total picnic sites. All facilities are managed by the Forest Service through a concessionaire. Table 4.1.2-1 lists the facilities. Representative photographs of the recreation facilities are shown in Figure 4.1.2-1. In addition to these facilities, Jackson Meadow Vista Point is located at the east end of Jackson Meadows Dam, and a campground on Jackson Point is accessible only by boat.

Table 4.1.2-1. Jackson Meadows Reservoir developed recreation facilities.

Campground	Typical Season (open/close)	Manager	Restrooms	Boat Launch	Parking Spaces	Picnic Sites	Camp Sites	PAOT Capacity
RECREATION FACILITIES ON EAST SIDE OF RESERVOIR								
Aspen Group Campground	mid May/late Sept	Forest Service (concessionaire)	3 vault (8 stalls)	none	35	none	3	100
Aspen Picnic Area	mid May/late Sept	Forest Service (concessionaire)	2 vault (5 stalls)	none	30 (informal)	11	none	55
Pass Creek Campground	mid May/late Sept	Forest Service (concessionaire)	2 flush/1vault (10 stalls)	none	none	none	30 (9 overflow)	150 (45 overflow)
Pass Creek Boat Ramp	mid May/late Sept	Forest Service (concessionaire)	1 vault (2 stalls)	3 lanes (concrete)	43 (23 main / 20 auxiliary)	none	none	N/A
East Meadow Campground	mid May/late Sept	Forest Service (concessionaire)	3 flush (9 stalls)	none	6 (overflow)	none	46	230
Jackson Meadows Vista	mid May/late Sept	Forest Service (concessionaire)	1 vault (1 stall)	none	8 (informal)	none	none	none
RECREATION FACILITIES ON WEST SIDE OF RESERVOIR								
Findley Campground	mid May/late Sept	Forest Service (concessionaire)	1 flush (4 stalls)	none	none	none	14	70
Firtop Campground	mid May/late Sept	Forest Service (concessionaire)	1 flush (2 stalls)	none	none	none	12	60
Woodcamp Campground	mid May/late Sept	Forest Service (concessionaire)	1 flush/1 vault (6 stalls)	none	none	none	20	100
Woodcamp Picnic	mid May/late Sept	Forest Service (concessionaire)	2 vault (5 stalls)	none	35 (informal)	6	none	130
Woodcamp Boat Ramp	mid May/late Sept	Forest Service (concessionaire)	1 vault (2 stalls)	1 lane (concrete)	36	none	none	N/A
Silvertip Group	mid May/late Sept	Forest Service (concessionaire)	2 vault (4 stalls)	none	15 (informal)	none	2	50
Jackson Point Boat-In Campground	mid May/late Sept	Forest Service (concessionaire)	2 pit (2 stalls)	none	none	none	10	50

Aspen Group Campground (Hill Unit)

Aspen Picnic Area

Pass Creek Campground

Pass Creek Overflow Campground

Pass Creek Boat Launch (main ramp)

Pass Creek Boat Launch (auxiliary ramp)

Figure 4.1.2-1. Views of Bowman Development recreation facilities at Jackson Meadows Reservoir.

East Meadow Campground

Findley Campground

Fir Top Campground

Silvertip Group Campground

Woodcamp Picnic Area

Woodcamp Boat Launch

Figure 4.1.2-1. (continued)

4.1.2.2 Milton Diversion Dam Impoundment Recreation Facilities

Along the north shore of the Milton Diversion Dam Impoundment, Licensee maintains six dispersed campsites with rock fire rings. A site identification and angler information sign are located near the impoundment inflow along with a single-unit vault toilet and several gravel/dirt access spurs for vehicle parking and informal boat launching (Figure 4.1.2-2).

Information Signs

Restroom

Figure 4.1.2-2. Views of Bowman Development recreation facilities at Milton Diversion Impoundment.

4.1.2.3 Faucherie Lake Recreation Facilities

Faucherie Lake Group Campground is located on the north shore of the reservoir, and accommodates 50 people at two group sites (Table 4.1.2-2). Overall, the group camp consists of eight picnic tables, two steel fire rings, six animal resistant food lockers, three animal-resistant trash receptacles, one animal resistant recycling receptacle, and a single, two-unit toilet building. On-site parking accommodates six VAOT (3 VAOT at each group site); however, additional parking is available at the day use and boat launch parking area. Each group site has four to five tent pads available. In addition, the rustic Faucherie Lake Day Use and Boat Launch facility is located adjacent to the group campground. The facility consists of an informal single-lane boat ramp, double-unit vault restroom, and a parking area (14 VAOT). Representative photographs of the recreation facilities are shown in Figure 4.1.2-3.

Table 4.1.2-2. Faucherie Lake developed recreation facilities.

Facility	Typical Season		Manager	Facility Type	Boat Launch	Parking	Picnic sites	Camp-sites	PAOT Capacity
	Open	Close							
Faucherie Group Campground	Mid May	Late Sept	Forest Service	developed	none	6	none	2	50
Faucherie Day Use & Boat Launch	Mid May	Late Sept	Forest Service	developed	1-lane (informal)	14	none	none	50

Faucherie Lake Group Campground


Faucherie Lake Group Campground


Faucherie Lake Day Use and Boat Launch


Faucherie Lake Day Use and Boat Launch

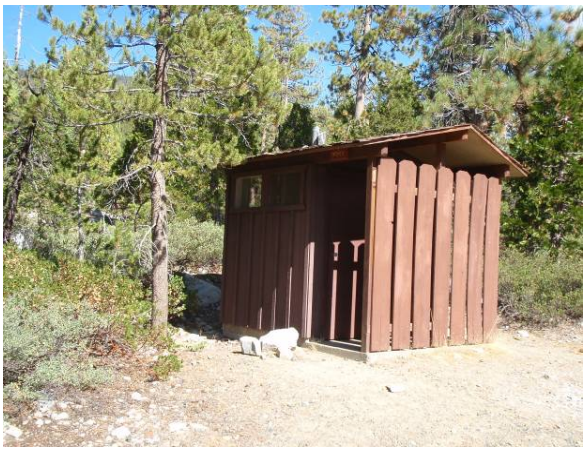
Figure 4.1.2-3. Views of Bowman Development recreation facilities at Faucherie Lake.

In addition, Licensee maintains a rustic, 16-unit campground, Canyon Creek Campground, located along Canyon Creek approximately 1.1 miles downstream of Faucherie Lake. The campground is managed by the Forest Service. Table 4.1.2-3 lists the campground details; and representative photographs of the campground are shown in Figure 4.1-4.

Table 4.1.2-3. Canyon Creek developed recreation facilities.

Facility	Typical Season		Manager	Facility type	Boat Launch	Parking	Picnic sites	Campsites	PAOT Capacity
	Open	Close							
Canyon Creek Campground	Mid - May	Late - Sept.	Forest Service	developed	none	none	none	16	80

Canyon Creek Campground



Canyon Creek Campground

Figure 4.1.2-4. Views of Bowman Development recreation facilities along Canyon Creek.

4.1.2.4 Bowman Lake Recreation Facilities

Licensee owns a developed campground near the Milton-Bowman Diversion tunnel outlet at the northeastern end of the reservoir that is managed by the Forest Service (Table 4.1.2-4). The facility has a toilet, a camping information sign, and consists of 11 campsites, each with a fire ring and picnic table. An informal boat launch ramp is located at the campground as well. In addition, 14 primitive dispersed campsites are located along the north shoreline each with only a steel fire ring/grill unit. Representative photographs of the recreation facilities are shown in Figure 4.1.2-5.

Table 4.1.2-4. Bowman Lake developed recreation facilities.

Facility	Typical Season		Manager	Facility type	Boat Launch	Parking	Picnic sites	Campsites	PAOT Capacity
	Open	Close							
Bowman Lake Campground	Mid - May	Late - Sept.	Forest Service	developed	informal	none	none	11	55

Bowman Lake Campground

Bowman Lake Campground

Primitive Campsites

Informal Boat Launch

Figure 4.1.2-5. Views of Bowman Development recreation facilities at Bowman Lake.

4.1.3 Streamflow Gages

The Bowman Development includes the seven streamflow gages listed in Table 4.1.3-1 that NID uses to monitor compliance with existing minimum streamflow requirements.

Table 4.1.3-1. Existing streamflow gages used by NID to monitor compliance with existing minimum streamflow requirements associated with the Bowman Development.

Location	USGS Gage No.	NID's Gage No.	Gage Name	Location (Latitude and Longitude)		Elevation (ft)
Middle Yuba River – Below Jackson Meadows Dam	11407815[1]	YB-301	Middle Yuba River Controlled Release at Jackson Meadows Dam, Near Sierra City, CA	39°30'36"	120°33'15"	5,800
Middle Yuba River – Below Milton Diversion Dam	11408550[1]	YB-304	Middle Yuba River Below Milton Dam, Near Sierra City, CA	39°31'19"	120°34'57"	5,690
Jackson Creek – Below Jackson Dam	11414700[2]	YB-312	Jackson Creek Below Jackson Lake, Near Sierra City, CA	39°27'53"	120°33'46"	6,570
Canyon Creek – Below French Dam	11414410[2]	YB-306	Canyon Creek Below French Lake, Near Cisco, CA	39°25'16"	120°32'30"	6,590

Table 4.1.3-1. (continued)

Location	USGS Gage No.	NID's Gage No.	Gage Name	Location (Latitude and Longitude)		Elevation (ft)
Canyon Creek – Below Faucherie Dam	11414450[2]	YB-308	Canyon Creek Below Faucherie Lake, Near Cisco, CA	39°25'46"	120°34'06"	6,080
Canyon Creek – Below Sawmill Dam	11414470[2]	YB-310	Canyon Creek Below Sawmill Lake, Near Graniteville, CA	39°26'44"	120°36'05"	5,790
Canyon Creek – Below Bowman Dam and Bowman-Spaulding Diversion Dam	11416500[1]	YB-315	Canyon Creek Below Bowman Lake, CA	39°26'23"	120°39'37"	5,300

[1] USGS rates this gage for full range in stage/flow.
[2] USGS rates this gage for partial range in stage/flow (up to 2.6 cfs).

4.1.4 Roads

Tables 4.1.4-1 and 4.1.4-2 list Primary Project Roads (non-recreation roads) and recreation-related roads, respectively, associated with the Bowman Development.

Table 4.1.4-1. Primary Project roads (non-recreation roads) included in Yuba-Bear Hydroelectric Project that are associated with the Bowman Development.

Road Name	Begin	End	Road ID in NID's Transportation Management Plan[1]	Land Ownership	Mile Marker-Start	Mile Marker-End	Total Length (mi)
Bowman Powerhouse Access Road	Bowman Road	Bowman Powerhouse	YBBPH_001	NID	0.000	0.360	0.360
French Lake Road	French Lake Road Gated Access Point (USFS 843-20)	French Dam	YBFL_001	Private	0.000	0.377	0.377
				Forest Service	0.377	1.867	1.490
				NID	1.867	2.092	0.225
Low Level Outlet Access Road	Henness Pass Road	Jackson Meadows Dam – Low Level Outlet	YBJMO_001	Forest Service	0.000	0.153	0.153
Pipeline Outlet Access Road			YBMBP_001	Forest Service	0.000	0.354	0.354
				NID	0.354	0.558	0.204
				Forest Service	0.558	0.978	0.420
Wilson Creek Diversion Road			YBWCD_001	Forest Service	0.000	0.185	0.185
Bowman Dam Access Road			YBBND_001	Forest Service	0.000	0.336	0.336
Bunkhouse Road			YBBNK_001	Forest Service	0.000	0.110	0.110

[1] NID's Amended Transportation Management Plan is included in Amended Appendix E4, *NID's Proposed Implementation Plans Included in the Proposed Yuba-Bear Hydroelectric Project*, in Exhibit E of NID's Amended Application. The plan includes a description of each road segment and maps showing the location of each road segment.

Table 4.1.4-2. Recreation roads included in Yuba-Bear Hydroelectric Project that are associated with the Bowman Development.

Road Name	Associated Recreation Facility	Begin	End	Land Ownership (FS Road #, if applicable)	Total Length (mi)
JACKSON MEADOWS RESERVOIR					
--	East Meadow Campground	Gate to East Meadow Campground/private road leading to south	NA[1] – loop road back to start	Forest Service (FS 70-80-10)	0.505
--	Pass Creek Campground	Junction with Pass Creek Boat Launch road	NA – loop road back to start	Forest Service	0.305
--	Pass Creek Overflow Campground	Junction with Pass Creek Boat Launch road	NA – loop road back to start	Forest Service (FS 301-65-1)	0.150
--	Pass Creek Boat Launch	Junction with Henness Pass Road	Start of concrete boat ramp	Forest Service (FS 301-65)	0.330
--	Aspen Group Campground	Junction with Henness Pass Road	NA – in-out road back to start	NID	0.185
--	Aspen Picnic Area	Junction with Henness Pass Road	NA – loop road back to start	Forest Service (FS 301-52)	0.215
--	Sanitary Dump Station	Junction with Henness Pass Road	NA – loop road back to start	NID	0.110
--	Woodcamp Access Road	Junction with Graniteville Road	Junction with Woodcamp Boat Launch facility road/start of Silvertip Group Campground facility road	Forest Service (FS 956-2)	0.730
--	Findley Campground	Junction with Woodcamp Access Road (FS Route 956-2)	NA – loop road back to start	Forest Service	0.295
--	Fir Top Campground	Junction with Woodcamp Access Road (FS Route 956-2)	NA – loop road back to start	Forest Service	0.180
--	Woodcamp Campground	Junction with Woodcamp Access Road (FS Route 956-2)	NA – loop road back to start	Forest Service	0.265
--	Woodcamp Picnic Area	Junction with Woodcamp Access Road (FS Route 956-2)	NA – loop road back to start	Forest Service	0.180
--	Woodcamp Boat Launch	Junction with Woodcamp Access Road (FS Route 956-2)	NA - loop road back to start	Forest Service	0.155
--	Silvertip Group Campground	Junction with Woodcamp Access Road (FS Route 956-2)	NA – loop road back to start	NID	0.180
--[3]	Administrative Site	Junction with Graniteville Road	NA – in-out road back to start	Forest Service	0.145
BOWMAN LAKE					
--	Bowman Lake Campground & Boat Launch	Junction with Bowman Lake Road	NA – in-out road back to start	NID	0.310

Table 4.1.4-2. (continued)

Road Name	Associated Recreation Facility	Begin	End	Land Ownership (FS Road #, if applicable)	Total Length (mi)
CANYON CREEK (NON-RESERVOIR)					
--	Canyon Creek Campground	Junction with FS Road 843-37 (road to Faucherie Lake)	NA – loop road back to start	Forest Service	0.280
FAUCHERIE LAKE					
--	Faucherie Lake Group Campground	Gate to group campground	NA – in-out road back to start	NID	0.065
--	Faucherie Lake Day Use	Junction with road over Faucherie Lake dam	NA – loop road back to start	NID	0.145

[1] NA means not applicable.
[2] NID's Amended Recreation Facilities Plan is included in Amended Appendix E4, *NID's Proposed Implementation Plans Included in the Proposed Yuba-Bear Hydroelectric Project*, in Exhibit E of NID's Amended Application. The plan includes a description of each road segment and maps showing the location of each road segment.
[3] NA proposes to remove this road from the Project since NID is removing the Administrative Site from the Project.

4.2 Dutch Flat Development

4.2.1 Developmental Facilities

The Dutch Flat Development begins at the Bowman-Spaulding Conduit on Canyon Creek (El. 5,400.0 ft – crest of Bowman-Spaulding Conduit Diversion Dam) and ends at the Dutch Flat No. 2 Powerhouse (turbine centerline elevation 2,735 ft) on the Bear River. The development includes one diversion impoundment (Bowman-Spaulding Conduit Diversion Impoundment), one reservoir (Dutch Flat No. 2 Forebay), two conduits (Bowman-Spaulding and Dutch Flat No. 2 Conduit), and one powerhouse (Dutch Flat No. 2). The dimensions, physical features, and other pertinent information for each facility and feature are provided in Tables 4.2.1-1 and 4.2.1-2. Representative photographs of the facilities and features are provided in Figure 4.2.1-1.

Table 4.2.1-1. Description of Yuba-Bear Hydroelectric Project existing developmental facilities and features – Dutch Flat Development.

BOWMAN-SPAULDING CONDUIT DIVERSION DAM	
River Mile	10.5 (Canyon Creek)
Original Construction Period	1926 - 1927
Placed in Service	1927
Hazard Classification	Low
Type	Concrete
Height	21 feet
Crest	--
Elevation	El. 5,400 feet
Width	18 inches
Length	150 feet
Base	--
Elevation	El. 5,379 feet
Width	3 feet 6 inches

Table 4.2.1-1. (continued)

BOWMAN-SPAULDING CONDUIT DIVERSION DAM (continued)	
Slope	--
Upstream Face (Horizontal to Vertical)	Vertical
Downstream Face (Horizontal to Vertical)	Varies
Normal Maximum Water Surface Elevation	El. 5,398 feet
Normal Minimum Water Surface Elevation	El. 5,393.8 feet
Drainage Area	27.1 sq. mi.
Bowman-Spaulding Conduit Diversion Dam Low-Level Outlet	--
Number & Size	One 30-inch-diameter
Outlet Invert Elevation	El. 5,380 feet
Control	Model 101 Calico 30-inch-diameter slide gate
Maximum Capacity	80 cfs
Closest Upstream Facility	Bowman Powerhouse, part of the Yuba-Bear Hydroelectric Project, immediately upstream
Closest Downstream Facility	Bowman-Spaulding Conduit, part of the Yuba-Bear Hydroelectric Project, immediately downstream
BOWMAN-SPAULDING CONDUIT	
General Description	Diverts flows below Bowman Reservoir and Dam to PG&E's Lake Spaulding via 40,501 feet of canals and flumes with 16,192 feet of tunnels.
Hydraulic Capacity	300 cfs
Tunnel No. 3	Horseshoe tunnel; 10 feet wide by 11 feet high with 5-foot radius. Approximate length: 796 feet. Max flow capacity 300 cfs. Inlet El. 5,391.18 feet. Outlet El. 5,390.13 feet.
Cut and Cover Section	Cut and cover section over Canyon Creek Inlet El. 5,390.13 feet. Outlet El. 5,390.06 feet.
Tunnel No. 1	Horseshoe tunnel; 10 feet wide by 11 feet high with 5-foot radius. Approximate length: 1,645 feet. Max flow capacity 300 cfs. Inlet El. 5,390.06 feet. Outlet El. 5,387.9 feet.
Canal No. 1	Trapezoid channel; 5.5 feet high by 8 feet wide base with 1H:4V and 1H:1V side slopes. Approximate length: 1,133.75 feet. Max flow capacity 300 cfs. Inlet El. 5,390.31 feet. Outlet El. 5,389.87 feet.
Tunnel No. 2	Horseshoe tunnel; 10 feet wide by 11 feet high with 5-foot radius. Approximate length: 7,443 feet. Max flow capacity 300 cfs. Inlet El. 5,387.26 feet. Outlet El. 5,378.5 feet.
Pipe No. 1	84-inch concrete pipe: concrete pipe; 80-inch-inside-diameter. Approximate length: 1,619.78 feet. Inlet El. 5,378.5 feet. Outlet El. 5,377.00 feet.
Canal No. 2	Canal: trapezoid channel; 5.5 feet high by 6 to 8 feet wide base with 4H:3V side slopes. Approximate length: 4,821 feet. Max flow capacity 300 cfs. Inlet El. 5,379.3 feet. Outlet El. 5,375.41 feet.
Texas Creek Bypass Tunnel No.4	Horseshoe tunnel; 10 feet wide by 11 feet high with 5-foot radius. Approximate length: 109 feet. Inlet El. 5,371.65 feet. Outlet approximate El. 5,371.0 feet.
Tunnel No. 5	Horseshoe tunnel; 10 feet wide by 11 feet high with 5-foot radius on top. Approximate length: 390 feet. Max flow capacity 300 cfs. Inlet approximate El. 5,370.8 feet. Outlet El. 5,370.26 feet.
TEXAS CREEK DIVERSION DAM	
River Mile	0.6 (Texas Creek)
Original Construction Period / Placed In Service	unknown
Hazard Classification	Low
Type	Concrete
Height	21 feet
Crest	50
Elevation	El. 5,385.75 feet
Base	--
Elevation	El. 5,375.75 feet
Slope	--
Upstream Face (Horizontal to Vertical)	Vertical
Downstream Face (Horizontal to Vertical)	Varies
Normal Maximum Water Surface Elevation	El. 5,385.75 feet

Table 4.2.1-1. (continued)

TEXAS CREEK DIVERSION DAM (continued)	
Normal Minimum Water Surface Elevation	El. 5,375.75 feet
Drainage Area	4.6 sq. mi.
Texas Creek Diversion Dam Low-Level Outlet	--
Number & Size	One 30-inch-diameter
Outlet Invert Elevation	El. 5,376 feet
Control	Model 101 Calico 30-inch diameter slide gate
Maximum Capacity	80 cfs
Closest Upstream Facility	Bowman-Spaulding Conduit, part of the Yuba-Bear Hydroelectric Project, immediately upstream
Closest Downstream Facility	Bowman-Spaulding Conduit, part of the Yuba-Bear Hydroelectric Project, immediately downstream
Concrete Bridge Flume Section / Shear Structure	Back Wall height: 7.5 feet. Opposite wall height: 5.5 feet. Floor width: 9 feet 10 inches. Outlet is restricted to 3.5-foot-high opening. Max flow capacity 300 cfs. Excess flow is spilled back to Texas Creek below diversion. Inlet El. 5,373.12 feet. Outlet approximate El. 5,373.0 feet.
East Texas Creek Tunnel	Horseshoe tunnel; 10 feet wide by 11 feet high with 5-foot radius. Approximate length: 90 feet. Max flow capacity 300 cfs. Inlet approximate El. 5,373.0 feet. Outlet approximate El. 5,372.75 feet.
Box Car Wasteway	Maximum flow capacity – 300 cfs
Canal Section	Trapezoid channel; 5 feet high by 6 feet wide base with 1H:1V side slopes. Approximate length: 6,000 feet. Max flow capacity 325 cfs. Inlet approximate El. 5,372.75 feet. Outlet El. 5,364.89 feet.
Clear Creek Tunnel	Horseshoe tunnel; 9 feet wide by 10.5 feet high with 4.75-foot radius. Approximate length: 2,350 feet. Max flow capacity 325 cfs. Inlet El. 5,364.89 feet. Outlet El. 5,354.40 feet.
Clear Creek Wasteway	Maximum flow capacity – 325 cfs
Christmas Tree Wasteway	Maximum flow capacity – 325 cfs
Canal Section	Trapezoid channel; 6 feet high by 12 to 13 feet wide base with 1H:1V side slopes. Approximate length: 5,928 feet. Max flow capacity 325 cfs. Inlet El. 5,356.15 feet. Outlet El. 5,349.57 feet.
Fall Creek Cross Flume	Length: 128 feet. Max Flow capacity 325 cfs. "U" shaped metal flume. Width at top 14 feet. Depth at center 7.3 feet with 1 foot freeboard. Inlet El. 5,351.75 feet. Outlet El. 5,351.75 feet
FALL CREEK DIVERSION DAM	
River Mile	2.0 (Fall Creek)
Original Construction Period / Placed In Service	unknown
Hazard Classification	Low
Type	Concrete
Height	5.5 feet
Crest	74.5
Elevation	El. 5,368.68 feet
Base	--
Elevation	El. 5,363.18 feet
Slope	--
Upstream Face (Horizontal to Vertical)	Vertical
Downstream Face (Horizontal to Vertical)	Varies
Normal Maximum Water Surface Elevation	El. 5,368.68 feet
Normal Minimum Water Surface Elevation	El. 5,363,18 feet
Drainage Area	5.81 sq. mi.
Fall Creek Diversion Dam Low-Level Outlet	--
Number & Size	One 30-inch-diameter
Outlet Invert Elevation	El. 5,363.5 feet
Control	Model 101 Calico 30-inch diameter slide gate
Maximum Capacity	80 cfs
Closest Upstream Facility	Bowman-Spaulding Conduit, part of the Yuba-Bear Hydroelectric Project, immediately upstream
Closest Downstream Facility	Bowman-Spaulding Conduit, part of the Yuba-Bear Hydroelectric Project, immediately downstream

Table 4.2.1-1. (continued)

FALL CREEK DIVERSION DAM (continued)	
Fall Creek Diversion Flume	Length: 204 feet. Max flow capacity 100 cfs. "U" shaped metal flume.
Canal Section	Trapezoid channel; 4 to 7 feet high by 12 to 13 feet wide base with 4H:1V side slopes. Approximate length: 12,325 feet. Max flow capacity 325 cfs. Inlet El. 5,353.7 feet. Outlet El. 5,347.4 feet.
Camp 19 Wasteway	Maximum flow capacity – unknown
CLEAR CREEK DIVERSION	
Clear Creek Diversion	Approximate width: 50 feet
TRAP CREEK DIVERSION	
Trap Creek Diversion	Approximate width: 50 feet. Trap Creek drops into this section.
Trap Creek Wasteway	Maximum flow capacity – 325 cfs
RUCKER CREEK DIVERSION	
Rucker Creek Wasteway	Maximum flow capacity – 325 cfs
Rucker Creek Diversion	Approximate width: 123 feet. Rucker Creek drops into this section.
Rucker Creek Tunnel	Horseshoe tunnel; 7.5 feet wide by 7.6 feet high with 4.22-foot radius. Approximate length: 2,965 feet. Inlet El. 5,343.5 feet. Outlet El. 5,332.7 feet.
BOWMAN-SPAULDING CONDUIT (DOWNSTREAM SECTION - BELOW FULLER LAKE)	
Canal Section (below PG&E's Fuller Lake Dam)	Trapezoid channel; 5.5 feet high by 10 feet wide base with 1H:1V side slopes. Approximate length: 2,682 feet. Max flow capacity 325 cfs. Inlet El. 5,331.57 feet. Outlet El. 5,329.99 feet.
Zion Hill Tunnel	Horseshoe tunnel; 7.5 feet wide by 7.6 feet high with 4.22-foot radius. Approximate length: 547 feet. Max flow capacity 325 cfs. Inlet El. 5,329.99 feet. Outlet El. 5,328.66 feet.
Jordan Hill Wasteway	Maximum flow capacity – 325 cfs
Canal Section	Trapezoid channel; 5.5 feet high by 10 feet wide base with 1H:1V side slopes. Approximate length: 382 feet. Max flow capacity 325 cfs. Inlet El. 5,328.66 feet. Outlet El. 5,328.30 feet.
Jordan Creek Inverted Siphon	7.5-foot-inside-diameter steel pipe. Inlet El. 5,328.30 feet. Outlet El. 5,326.80 feet.
Canal Section	Trapezoid channel; 5.5 feet high by 10 feet wide base with 1H:1V side slopes. Approximate length: 961 feet. Max flow capacity 325 cfs. Inlet El. 5,326.80 feet. Outlet El. 5,325.90 feet.
DUTCH FLAT NO. 2 CONDUIT	
Hydraulic Capacity	610 cfs
Intake Structure Control	Invert El. 3,345.6 feet, controlled by a 14-foot-square vertical slide gate with screen slot or stop logs.
Operating Constraints	Minimum and maximum operating elevations at PG&E's Drum Afterbay: 3,355.6 and 3,382.6 feet, respectively.
Dutch Flat No. 2 Conduit Intake Tunnel	Inlet El. 3,348.6 feet. Outlet El. 3,349.16 feet. Concrete-lined horseshoe tunnel; 12-foot 7-inch base width, 7-foot 2.5-inch vertical wall below a 6-foot radius top section. Length: 530 feet.
Dutch Flat No. 2 Flume	Concrete flume, 7.5 feet high by 14 feet wide concrete flume, 19,099 feet long. Inlet El. 3,349.16 feet. Outlet El. 3,331.75 feet.
Dutch Flat No. 2 Flume Intake Wasteway	Size: 12-foot long spillway chute. Length: 98.5 feet. Max discharge capacity 610 cfs.
Stump Canyon Siphon Intake Wasteway	Size: 12.5-foot long spillway chute. Length: 200 feet. Max discharge capacity 610 cfs.
Stump Canyon Siphon	Steel pipeline. Inlet El. 3,331.75 feet. Outlet El. 3,327.78 feet. Size: 9-foot-inside-diameter. Length: 1,145 feet.
Canal Section	Trapezoid channel; 6.5 feet high by 10 feet wide base with 1.5H:1V and 1H:1V side slopes. Approximate length: 3,914 feet. Inlet El. 3,327.78 feet. Outlet El. 3,324.52 feet.
DUTCH FLAT NO. 2 FOREBAY	
River Mile	Off-channel
Construction Period	1964-1965
Placed in Service	1965
Dutch Flat No. 2 Forebay	--
Hazard Classification	High
Type	Earth fill
Height	77 feet
Crest	--

Table 4.2.1-1. (continued)

DUTCH FLAT NO. 2 FOREBAY (continued)	
Elevation	El. 3,336 feet
Width	20 feet
Length	440 feet
Base	--
Elevation	3,267 feet
Width	280 feet
Slope	--
Upstream Face (Horizontal to Vertical)	3H:1V
Downstream Face (Horizontal to Vertical)	2H:1V from crest to El. 3,280 feet then 2.5V:1V to toe
Dutch Flat No. 2 Forebay Spillway	--
Type	Overflow
Crest	--
Elevation	El. 3,331.6 feet
Width	63-foot-long spillway chute
Length	250
Control	Uncontrolled spillway
Maximum Discharge	4,500 cfs at zero freeboard
Dutch Flat No. 2 Forebay Low-Level Outlet	--
Number, Size, & Control	One 24-inch-diameter
Outlet Invert Elevation	El. 3,295 feet
Maximum Capacity	134.0 cfs
Trash Rack	6 feet 9 inches by 4 feet metal grizzly
Dutch Flat No. 2 Penstock Intake	--
Number, Size, & Control	One 8-foot square concrete tunnel with automatic emergency-shutoff knife gate
Outlet Invert Elevation	El. 3,300 feet
Maximum Capacity	610 cfs
Trash Rack	Yes
Dutch Flat No. 2 Forebay	--
Normal Maximum Water Surface Elevation	El. 3,330.0 feet
Normal Minimum Water Surface Elevation	El. 3,323.0
Drainage Area	0.10 square miles
Gross Storage at normal maximum water surface el.	177.9 acre-feet
Usable Storage	159.8 acre-feet
Surface Area at normal maximum water surface el.	8 acres
Length	0.2-mile
Width	0.1-mile
Maximum Depth	61 feet
Shoreline Length	0.5-mile
Closest Upstream Facility	Dutch Flat No. 2 Conduit, part of NID's Yuba-Bear Hydroelectric Project, located immediately upstream
Closest Downstream Facility	Dutch Flat No. 2 Powerhouse, part of NID's Yuba-Bear Hydroelectric Project, located immediately downstream
DUTCH FLAT NO. 2 POWERHOUSE PENSTOCK	
Dutch Flat No. 2 Powerhouse Penstock	--
Number and Type	One
Construction	Steel penstock 3/8-inch thick
Size	8-foot square, concrete tunnel leading to 6-foot 6-inch diameter steel penstock
Length	1,370.2 ft
Maximum Flow Capacity	610 cfs
DUTCH FLAT NO. 2 POWERHOUSE	
Placed in Service (Began Commercial Operation)	1965
Plant Operation	Automatic, operated from PG&E's Drum Switching Center located in the Drum No. 1 Powerhouse.
Normal Type of Operation	Intermediate loads with some peaking
Structure	--

Table 4.2.1-1. (continued)

DUTCH FLAT NO. 2 POWERHOUSE (continued)	
Type	Outdoor powerhouse, reinforced concrete
Construction Period	1964-1965
Approximate Size	60 feet wide by 72 feet wide
Turbine	--
Number of Units	One
Type	Vertical axis Francis
Manufacturer	Leffel
Upgrades	Rewound May 1982
Nameplate Output	31,000 HP
Nameplate Capacity	24.57 MW
Nameplate Rated Head	581 feet
Speed	450 RPM
Nameplate Rated Flow	600 cfs
Turbine Centerline Elevation	El. 2,735.0 feet
Generator	--
Type	3 phase, 60 cycle Synchronous
Manufacturer	Westinghouse
Upgrades	Rewind in 1982
Nameplate Output	27,300 kVA
Nameplate Capacity	27,300 kVA
Power Factor	0.90
Voltage	6,900 Volts
Speed	450 RPM
Governor	--
Type	Cabinet
Manufacturer	Woodward
Turbine Shutoff Valve	Butterfly valve
Closest Upstream Facility	Dutch Flat No. 2 Forebay, part of NID's Yuba-Bear Hydroelectric Project, located immediately upstream
Closest Downstream Facility	Dutch Flat Afterbay, part of NID's Yuba-Bear Hydroelectric Project, located immediately downstream
DUTCH FLAT NO. 2 POWERHOUSE SWITCHYARD	
Dutch Flat No.2 Powerhouse Switchyard	--
Location	North side of unit.
Size	24 feet by 30 feet
Transformer Type	Westinghouse Type SL
Transformer Nameplate Rating	26,000 kVA
Maximum Capacity	26,000 kVA
Voltage Rating	115,000 – 6,900 volts
High Voltage Breakers	Westinghouse 3-phase oil circuit breaker, outdoor type GM
Associated Transmission Line within FERC License	Power fed to PG&E 115kV Drum-Rio Oso Line

Figure 4.2.1-1. Views of Dutch Flat Development facilities and features.

Figure 4.2.1-1. (continued)

Figure 4.2.1-1. (continued)

4.2.2 Recreation Facilities

The Dutch Flat Development does not include any existing developed recreation facilities; however, an undeveloped parking area is located at Dutch Flat No. 2 Forebay on NID land.

4.2.3 Streamflow Gages

The Dutch Flat Development includes the streamflow gage listed in Table 4.2.3-1 that NID uses to monitor compliance with existing minimum streamflow requirements.

Table 4.2.3-1. Existing streamflow gages used by NID to monitor compliance with existing minimum streamflow requirements associated with the Dutch Flat Development.

Location	USGS Gage No.	NID's Gage No.	Gage Name	Location (Latitude and Longitude)		Elevation (ft)
Bear River – Below Dutch Flat Afterbay Dam	11421790[1]	YB-197	Bear River Below Dutch Flat Afterbay Near Dutch Flat, CA	39°12'49"	120°50'39"	2,600

[1] USGS rates this gage for full range in stage/flow.

4.2.4 Roads

Table 4.2.4-1 lists Primary Project Roads associated with the Dutch Flat Development. The development does not include recreation-related roads.

Table 4.2.4-1. Primary Project roads included in Yuba-Bear Hydroelectric Project that are associated with the Dutch Flat Development.

Road Name	Begin	End	Road ID in NID's Transportation Management Plan[1]	Land Ownership	Mile Marker-Start	Mile Marker-End	Total Length (mi)
Bowman-Spaulding Berm Road	USFS 18-21	Texas Creek Diversion Dam	YBBSC_001	NID	0.000	0.265	0.265
				Private	0.265	0.942	0.677
Texas Creek Diversion Access Road	Texas Creek Diversion Access Road MM 0.358 (gated access point)	Bowman-Spaulding Berm Road	YBBSC_003	NID	0.000	0.358	0.358
Box Car Section Road	End of Texas Creek Tunnel section, Bowman-Spaulding Conduit	Beginning of Clear Creek Tunnel section, Bowman-Spaulding Conduit	YBBSC_004	Forest Service	0.000	0.384	0.384
				Private	0.384	1.077	0.693
				Forest Service	1.077	1.325	0.248
Bowman-Spaulding Berm Road	Bowman Road	[terminal road]	YBBSC_006	Forest Service	0.000	0.440	0.440
				PG&E	0.440	0.915	0.475
				Forest Service	0.915	1.510	0.595
				PG&E	1.510	1.903	0.393
				Forest Service	1.903	2.451	0.548
				Private	2.451	2.690	0.239
				PG&E	2.690	3.508	0.818
Dutch Flat No. 2 Conduit Intake Access Road	Drum Powerhouse Road	Dutch Flat No. 2 Conduit Intake	YBDFI_001	Forest Service	0.000	0.348	0.348
				PG&E	0.348	0.383	0.035
"B" Alarm Road	Drum Powerhouse Road	Dutch Flat No. 2 Conduit	YBBAL_001	PG&E	0.000	0.784	0.784
				Forest Service	0.784	1.484	0.70
Stump Canyon Intake Access Road	Lowell Hill Road	Stump Canyon Siphon Intake	YBSCS_001	PG&E	0.000	0.211	0.211
				Forest Service	0.211	0.426	0.215
				PG&E	0.426	0.823	0.397
Stump Canyon Siphon Low Level Valve Access Road	Stump Canyon Intake Access Road	Stump Canyon Siphon Low Level Valve	YBSCS_002	PG&E	0.000	0.156	0.156
Stump Canyon Siphon Outlet Access Road	Dutch Flat No. 2 Forebay Spillway	Stump Canyon Siphon Outlet	YBSCS_003	NID	0.000	0.081	0.081
				Forest Service	0.081	0.447	0.366
				NID	0.447	0.566	0.119
				Forest Service	0.566	0.691	0.125
Canal Access Road	Bowman Road	Bowman-Spaulding Conduit Tunnel Intake	YBZION_001	PG&E	0.000	0.322	0.322

[1] NID's Amended Transportation Management Plan is included in Amended Appendix E4, *NID's Proposed Implementation Plans Included in the Proposed Yuba-Bear Hydroelectric Project*, in Exhibit E of NID's Amended Application. The plan includes a description of each road segment and maps showing the location of each road segment.

4.3 Chicago Park Development

4.3.1 Developmental Facilities

The Chicago Park Development begins at the Dutch Flat Afterbay Dam (El. 2,755 ft) on the Bear River and ends at the Chicago Park Powerhouse (El. 2,240 ft) on the Bear River. The development includes one reservoir (Dutch Flat Afterbay), one conduit (Chicago Park Conduit), and one powerhouse (Chicago Park). The dimensions, physical features, and other pertinent information for each facility and feature are provided in Table 4.3.1-1. Representative photographs of the facilities and features are provided in Figure 4.3.1-1.

Table 4.3.1-1. Description of Yuba-Bear Hydroelectric Project facilities and features – Chicago Park Development.

DUTCH FLAT AFTERBAY	
River Mile	21.3 (Bear River)
Construction Period	1964-1965
Dutch Flat Afterbay Dam	--
Hazard Classification	High
Type	Earth and rockfill
Height	165 feet
Crest	--
Elevation	El. 2,755.0 feet
Width	20 feet
Length	495 feet
Base	--
Elevation	El. 2,580.5 feet
Width	410 feet
Slope	--
Upstream Face (Horizontal to Vertical)	2.5H:1V
Downstream Face (Horizontal to Vertical)	2H:1V
Dutch Flat Afterbay Spillway	--
Type	Ogee overflow
Crest	--
Elevation	El. 2,741 feet
Width	100 feet
Length	405 feet
Control	Uncontrolled
Hoist Type	N/A
Maximum Discharge	Approximately 21,500 cfs
Dutch Flat Afterbay Low-Level Outlet	--
Number, Size & Control	Two outlet pipes. One 42-inch-diameter hydraulically controlled, and one 12-inch-diameter manually controlled.
Outlet Invert Elevation	2,640 feet
Maximum Capacity	150 cfs (combined)
Trash Rack	8 feet wide by 6 feet high
Dutch Flat Afterbay Reservoir	--
Normal Maximum Water Surface Elevation	El. 2,741.0 feet
Normal Minimum Water Surface Elevation	El. 2,729.0 feet
Drainage Area	21.2 square miles
Gross Storage at spillway crest elevation	1,359.2 acre-feet [based on Licensee's 2007-2008 bathymetric studies]
Usable Storage	1,359.2 acre-feet [based on Licensee's 2007-2008 bathymetric studies]
Surface Area at normal maximum water surface el.	38 acres
Length	0.9 miles
Width	0.08-mile

Table 4.3.1-1. (continued)

DUTCH FLAT AFTERBAY (continued)	
Maximum Depth	170 feet
Shoreline Length	1.9 miles
Closest Upstream Facility	Dutch Flat No. 2 Powerhouse, part of NID's Yuba-Bear Hydroelectric Project, located immediately upstream
Closest Downstream Facility	Chicago Park Conduit, part of NID's Yuba-Bear Hydroelectric Project, located immediately downstream
CHICAGO PARK CONDUIT	
Hydraulic Capacity	1,100 cfs
Operating Constraints	Minimum and maximum operating elevations at PG&E's Dutch Flat Afterbay: 2,740.0 and 2,729.0 feet, respectively.
Chicago Park Conduit	--
Intake Elevation	El. 2,720.0 feet
Trash Rack	32 feet high by 41.5 feet wide
Flume	16,225 feet of concrete flume; flow width 18 feet wide, flow depth 10 feet with one foot of freeboard.
Chicago Park Conduit Intake Wasteway	Maximum flow capacity: 1,100 cfs
Little York Wasteway	Maximum flow capacity: 1,100 cfs
Width	39-foot-long spillway chute
Length	217 feet
LITTLE YORK DIVERSION DAM	
Little York Basin Diversion	Rolled impervious fill with cobbles on upstream and downstream face. Dam is 10 feet wide at the crest, crest El. 2,721.0 feet, upstream slope of 3H:1V, downstream slope 2.5H:1V. Normal water-surface elevation 2,718.18 feet.
Canal from Little York Basin to Chicago Park Forebay	4,148 feet of gunite-lined ditch, 14-foot-wide base with 1.5H:1V and 1H:1V side slopes, flow depth of 10 feet.
CHICAGO PARK FOREBAY	
River Mile	Off-channel
Construction Period	1965
Chicago Park Forebay Dam	--
Hazard Classification	Low
Type	Earth fill with gunite face
Height	35 feet
Crest	--
Elevation	El. 2,720 feet
Width	15 feet
Length	200 feet
Base	--
Elevation	2,682.01 feet
Width	50 feet (approximately)
Slope	--
Upstream Face (Horizontal to Vertical)	2.5H:1.0V
Downstream Face (Horizontal to Vertical)	1.4H:1.0V
Fish Ladder	None
Chicago Park Forebay Spillway	--
Type	Side channel, located on canal upstream of forebay, spills to Steephollow Creek
Crest	--
Elevation	2,717.3 feet
Width	40-foot-long spillway chute
Length	427 feet
Control	Uncontrolled
Hoist Type	N/A
Maximum Discharge	1,100 cfs
Chicago Park Forebay Low-Level Outlet	--
Number, Size, & Control	One 24-in diameter sluice gate
Outlet Invert Elevation	2,689.0 feet

Table 4.3.1-1. (continued)

CHICAGO PARK FOREBAY (continued)	
Maximum Capacity	Approximately 75 cfs
Trash Rack	None
Chicago Park Powerhouse Penstock Intake	
Number, Size, & Control	One 11-foot square concrete tunnel with automatic emergency-shutoff knife gate
Outlet Invert Elevation	El. 2,690.0 feet
Maximum Capacity	1,167 cfs
Trash Rack	Yes
Chicago Park Forebay Reservoir	--
Normal Maximum Water Surface Elevation	El. 2,716 feet
Normal Minimum Water Surface Elevation	El. 2,710 feet
Drainage Area	
Gross Storage at normal maximum water surface el.	103 acre-feet
Usable Storage	103 acre-feet
Surface Area at normal maximum water surface el.	7 acres
Length	0.3 mile
Width	0.03 mile
Maximum Depth	31 feet
Shoreline Length	0.7 mile
Closest Upstream Facility	Chicago Park Conduit, part of NID's Yuba-Bear Hydroelectric Project, located immediately upstream
Closest Downstream Facility	Chicago Park Powerhouse, part of NID's Yuba-Bear Hydroelectric Project, located immediately downstream
CHICAGO PARK PENSTOCK	
Chicago Park Powerhouse Penstock	--
Number and Type	One
Construction	Steel penstock 3/8-inch thick
Size	11-foot square, concrete tunnel leading to steel penstock composed of four sections with diameters of 10, 9.75, 9.5, and 9.25 feet
Length	2,200 ft
Maximum Flow Capacity	1,167 cfs
CHICAGO PARK POWERHOUSE	
Placed in Service (Began Commercial Operation)	November 29, 1965
Plant Operation	Automatic, operated with SCADA control from PG&E's Drum Switching Center located in the Drum No. 1 Powerhouse
Normal Type of Operation	Intermediate loads with peaking
Structure	--
Type	Indoor powerhouse above ground concrete structure
Approximate Size	65.5 feet wide by 86 feet wide
Turbine	--
Number of Units	One
Type	Vertical Francis
Manufacturer	Leffel
Upgrades	--
Nameplate Output	50,000 HP
Nameplate Rated Head	480.0 feet
Speed	300 RPM
Nameplate Rated Flow	1,100cfs
Turbine Centerline Elevation	El. 2,240.0 feet
Generator	--
Type	Outdoor umbrella type (synchronous)
Manufacturer	Westinghouse
Upgrades	Rewind 1981
Nameplate Output	44,000 kVA
Nameplate Capacity	39 MW
Power Factor	0.9
Voltage	11,500 volts

Table 4.3.1-1. (continued)

CHICAGO PARK POWERHOUSE (continued)	
Speed	300 RPM
Governor	--
Type	Cabinet
Manufacturer	Woodward
Closest Upstream Facility	Chicago Park Forebay, part of NID's Yuba-Bear Hydroelectric Project, located immediately upstream
Closest Downstream Facility	Rollins Reservoir, part of NID's Yuba-Bear Hydroelectric Project, located immediately downstream
CHICAGO PARK SWITCHYARD	
Chicago Park Switchyard	--
Location	East of unit
Size	35 feet by 24 feet
Transformer Type	Westinghouse 3-phase transformer
Transformer Nameplate Rating	41,500 kVA
Maximum Capacity	41,500 kVA
Voltage Rating	115 kV
High Voltage Breakers	SF6 power circuit breaker, type 121 PM 40-2
Associated Transmission Line within FERC License	Power fed to PG&E 115kV Drum-Rio Oso Line

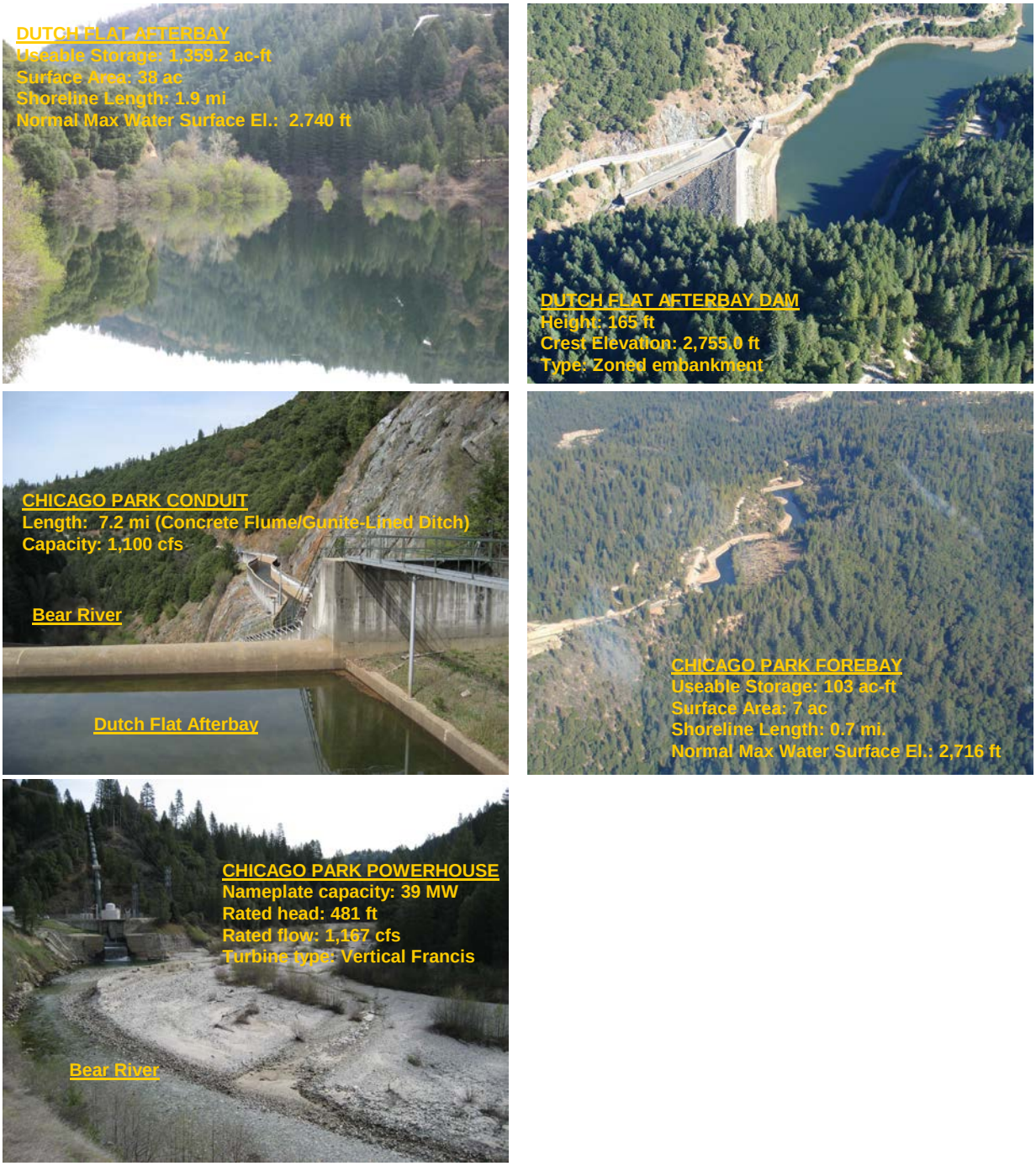


Figure 4.3.1-1. Views of Chicago Park Development facilities and features.

4.3.2 Recreation Facilities

The Chicago Park Development does not include any existing developed recreation facilities; however several undeveloped recreation sites are located at Dutch Flat Afterbay. On NID land, an undeveloped parking area is located to the east of where the Dutch Flat No. 2 Powerhouse Penstock enters the afterbay. An undeveloped parking area and informal launch ramp are located on PG&E land to the west of where the Dutch Flat No. 2 Powerhouse Penstock enters the afterbay. A single undeveloped parking area is located on private land on the south side of the afterbay. Several roadside parking areas beyond the dam on the north side of the afterbay for approximately 0.25 mile are located on BLM land. Of note, the Chicago Park Forebay and Powerhouse area do not have any developed recreation facilities, but do provide undeveloped recreation opportunities.

4.3.3 Streamflow Gages

No streamflow gages are associated with the existing Chicago Park Development.

4.3.4 Roads

Table 4.3.4-1 list Primary Project Roads associated with the Chicago Park Development. There are no recreation roads associated with the development.

Table 4.3.4-1. Primary Project roads (non-recreation roads) included in Yuba-Bear Hydroelectric Project that are associated with the Chicago Park Development.

Road Name	Begin	End	Road ID in NID's Transportation Management Plan[1]	Land Ownership	Mile Marker-Start	Mile Marker-End	Total Length (mi)
Chicago Park Forebay Road	Chicago Park Powerhouse Road	Chicago Park Forebay Road (YBCPF_002)	YBCPF_001	BLM	0.000	1.638	1.638
				Private	1.638	1.745	0.107
Chicago Park Forebay Road	Chicago Park Forebay Road (YBCPF_001)	Chicago Park Forebay Road (YBCPF_003)	YBCPF_002[2]	BLM	0.000	0.574	0.574
Chicago Park Forebay Road	Chicago Park Forebay Road (YBCPF_002)	Lowell Hill Road	YBCPF_003	BLM	0.000	0.083	0.083
				Private	0.083	0.180	0.097
Chicago Park Powerhouse Access Road	Chicago Park Forebay Road	Chicago Park Powerhouse	YBCPH_001	NID	0.000	0.008	0.008
				BLM	0.008	0.159	0.151

[1] NID's Amended Transportation Management Plan is included in Amended Appendix E4, *NID's Proposed Implementation Plans Included in the Proposed Yuba-Bear Hydroelectric Project*, in Exhibit E of NID's Amended Application. The plan includes a description of each road segment and maps showing the location of each road segment.

[2] YBCPF_002 is proposed to be decommissioned by NID; see Amended Transportation Management Plan in Amended Appendix E4 of this FLA.

4.4 Rollins Development

4.4.1 Developmental Facilities

The Rollins Development, which includes one reservoir and one powerhouse, is the lowest elevation of the Project developments. It includes the largest Project storage reservoir – Rollins Reservoir - at an elevation of 2,171 ft, and one powerhouse (Rollins). Tables 4.4.1-1 and 4.4.1-2 provide the dimensions, physical features, and other pertinent information for each facility and feature excluding recreation facilities associated with Rollins Reservoir, which are described in Section 4.4.1. Figure 4.4.1-1 includes photographs of Rollins Development facilities and features.

Table 4.4.1-1. Description of Yuba-Bear Hydroelectric Project existing facilities and features – Rollins Development.

ROLLINS DAM AND RESERVOIR	
River Mile	10.5 (Bear River)
Construction Period	1964-1965
Rollins Dam	--
Hazard Classification	High
Type	Zoned embankment with river-run sand and gravel shell, impervious core, and pervious filter zones.
Height	252.5 feet
Crest	--
Elevation	El. 2,187.5 feet
Width	30 feet
Length	1,260 feet
Base	--
Elevation	1,930.0 feet
Width	Approximately 900 feet
Slope	--
Upstream Face (Horizontal to Vertical)	2.5H:1V
Downstream Face (Horizontal to Vertical)	2H:1V
Rollins Dam Spillway	--
Type	Uncontrolled concrete ogee crest
Crest	--
Elevation	El. 2,171.0 feet
Width	316.0 feet
Length	620-foot-long spillway chute
Control	Uncontrolled
Maximum Discharge	70,000 cfs at zero freeboard
Rollins Dam Low-Level Outlet and Penstock Intake	--
Number, Size & Control	Single combined intake tower; common tunnel bifurcates into low-level outlet tunnel (controlled by Howell-Bunger valve) and Rollins Powerhouse Penstock
Outlet Invert Elevation	El. 2,022 feet (top of trash rack / intake tower approximately el. 2,030 feet)
Maximum Capacity	Approximately 2,840 cfs
Trash Rack	19 feet wide by 11.5 feet high
Rollins Dam Low-Level Outlet	--
Number, Size & Control	One 5-foot-diameter pipe controlled by a Howell-Bunger valve
Outlet Invert Elevation	El. 2,022 feet
Maximum Capacity	Approximately 2,000 cfs
Trash Rack	19 feet wide by 11.5 feet high

Table 4.4.1-1. (continued)

ROLLINS DAM AND RESERVOIR (continued)	
Rollins Reservoir	--
Normal Maximum Water Surface Elevation	El. 2,171.0 feet
Normal Minimum Water Surface Elevation	El. 2,030.0 feet (Davis-Grunsky recreation minimum elevation: 2,150 feet
Drainage Area	104 square miles
Gross Storage at normal maximum water surface el.	58,682 acre-feet [based on Licensee's 2007-2008 bathymetric studies]
Usable Storage	54,453 acre-feet [based on Licensee's 2007-2008 bathymetric studies]
Surface Area.	788 acres (at spillway crest elevation)
Length	3.3 miles
Width	1.8 miles
Maximum Depth	209 feet
Shoreline Length	19 miles
Closest Upstream Facility	Chicago Park Powerhouse, part of NID's Yuba-Bear Hydroelectric Project, located immediately upstream
Closest Downstream Facility	Rollins Powerhouse, part of NID's Yuba-Bear Hydroelectric Project, located immediately downstream
ROLLINS PENSTOCK	
Rollins Penstock	--
Number and Type	One
Construction	Steel penstock 3/8-inch thick housed in tunnel (20 feet wide by 16 feet high with 8-foot radius).
Size	8.5-foot-diameter
Length	524 feet
Maximum Flow Capacity	840 cfs [existing powerhouse maximum]
ROLLINS POWERHOUSE	
Placed in Service (Began Commercial Operation)	August 20, 1980
Plant Operation	Automatic, operated with SCADA controls from PG&E's Drum Switching Center located in the Drum No. 1 Powerhouse.
Normal Type of Operation	Base loaded
Structure	--
Type	Outdoor powerhouse, aboveground, reinforced concrete
Construction Period	1980
Approximate Size	52.5 feet wide by 56 feet wide
Turbine	--
Number of Units	One
Type	Vertical-axis Francis
Manufacturer	S. Morgan Smith
Upgrades	New Voith Runner in 1987
Nameplate Output	16,300 HP
Nameplate Capacity	12.15 MW
Nameplate Rated Head	208 feet
Speed	277 RPM
Nameplate Rated Flow	840 cfs
Turbine Centerline Elevation	El. 1,960.0 feet
Generator	--
Type	Alternating Current Generator
Manufacturer	Westinghouse
Upgrades	Rewound April 2004
Nameplate Output	13,500 kVA
Nameplate Capability	12.15 MW
Power Factor	0.9
Voltage	6,600 volts
Speed	277 RPM
Governor	--
Type	Cabinet
Manufacturer	Woodward

Table 4.4.1-1. (continued)

ROLLINS SWITCHYARD (continued)	
Closest Upstream Facility	Rollins Dam, part of NID's Yuba-Bear Hydroelectric Project, located immediately upstream
Closest Downstream Facility	Bear River Canal Diversion Dam, part of PG&E's Drum-Spaulding Project, located immediately downstream
Rollins Switchyard	--
Location	North of unit
Size	24 feet by 46 feet
Transformer Type	G.E. RSL
Transformer Nameplate Rating	12,000 kVA, 65C degree rise
Maximum Capacity	12,000 kVA
Voltage Rating	6,600 kV to 66,160 kV
Associated Transmission Line within FERC License	PG&E 60 kV Rollins Line, FERC Project No. 2784

Figure 4.4.1-1. Views of Rollins Development facilities and features.

4.4.2 Recreation Facilities

The Rollins Development includes recreation facilities at Rollins Reservoir. These facilities are described below.

Four campgrounds are located at Rollins Reservoir – Orchard Springs, Greenhorn, Peninsula, and Long Ravine campgrounds (Table 4.4.2-1). In all, these campgrounds provide 332 developed campsites that offer different camping opportunities for tents, RVs, and at small wood/log cabins. Each campground complex offers a boat launching facility. Orchard Springs, Greenhorn, and Long Ravine campgrounds offer a predominantly high-density camping experience with minimal space and screening between campsites, and many sites grouped together in tight loops/areas. Peninsula Campground offers a low-to-medium density camping experience at three major loops with moderate screening between sites in a predominantly forested setting. All the campgrounds, except Peninsula Campground, are open year-round. Figure 4.4.2-1 shows representative photographs of the recreation facilities.

Table 4.4.2-1. Rollins Reservoir developed recreation facilities.

Facility	Typical Season	Manager	Facility Type	Boat Launch	Parking	Picnic Sites	Camp Sites	PAOT Capacity
Orchard Springs	Year-round	NID	developed	2-lane	150	none	101	unknown
Greenhorn	Year-round	NID	developed	2-lane	143	3	79	unknown
Peninsula	April 15 - September 15	NID	developed	2-lane	50	unknown	67	unknown
Long Ravine	Year-round	NID	developed	2-lane	72	none	85	unknown

Orchard Springs Campground

Orchard Springs Boat Launch

Figure 4.4.2-1. Views of Rollins Reservoir developed recreation facilities.

Greenhorn Campground

Greenhorn Boat Launch

Peninsula Campground

Peninsula Boat Launch

Long Ravine Campground

Long Ravine Boat Launch

Figure 4.4.2-1. (continued)

4.4.3 Streamflow Gages

The Rollins Development includes the streamflow gage listed in Table 4.4.3-1 that NID uses to monitor compliance with existing minimum streamflow requirements.

Table 4.4.3-1. Existing streamflow gages used by NID to monitor compliance with existing minimum streamflow requirements associated with the Rollins Development.

Location	USGS Gage No.	NID's Gage No.	Gage Name	Location (Latitude and Longitude)		Elevation (ft)
Bear River – Below Rollins Dam	11422500	YB-196	Bear River Below Rollins Dam Near Cisco, CA	39°08'3"	120°57'11"	1,975

[1] USGS rates this gage for full range in stage/flow.

4.4.4 Roads

Table 4.4.4-1. Primary Project roads included in Yuba-Bear Hydroelectric Project that are associated with the Rollins Development.

Road Name	Begin	End	Road ID in NID's Transportation Management Plan[1]	Land Ownership	Mile Marker-Start	Mile Marker-End	Total Length (mi)
Rollins Dam Spillway Access Road	Rollins Lake Road	Rollins Dam (spillway)	YBRDS_001	NID	0.0	0.934	0.934
Rollins Powerhouse Access Road	Old Bridge Road	Rollins Powerhouse	YBRPA_001	NID	0.0	0.133	0.133
Connroy Place	Country Place	Orchard Springs Microwave Station	YBRMS_001	NID	0.0	0.062	0.062

[1] NID's Amended Transportation Management Plan is included in Amended Appendix E4, *NID's Proposed Implementation Plans Included in the Proposed Yuba-Bear Hydroelectric Project*, in Exhibit E of NID's Amended Application. The plan includes a description of each road segment and maps showing the location of each road segment.

Table 4.4.4-2. Recreation roads included in Yuba-Bear Hydroelectric Project that are associated with the Rollins Development.

Road Name	Associated Recreation Facility	Begin	End	Land Ownership (FS Road #, if applicable)	Total Length (mi)
ROLLINS LAKE					
Larsen Road	Orchard Springs Recreation Complex	Entrance station to recreation complex	NA - all roads terminate in facility or loop back to start	NID	1.405
Rollins Park Road	Greenhorn Recreation Complex	Junction with Louis Road	NA - all roads terminate in facility or loop back to start	NID	1.065

Table 4.4.4-2. (continued)

Road Name	Associated Recreation Facility	Begin	End	Land Ownership (FS Road #, if applicable)	Total Length (mi)
ROLLINS LAKE					
You Bet Road	Peninsula Recreation Complex	Entrance station to recreation complex	NA - all roads terminate in facility or loop back to start	NID	1.825
--	Long Ravine Recreation Complex	Entrance station to recreation complex	NA - all roads terminate in facility or loop back to start	NID	1.375

[1] NID's Amended Recreation Facilities Plan is included in Amended Appendix E4, *NID's Proposed Implementation Plans Included in the Proposed Yuba-Bear Hydroelectric Project*, in Exhibit E of NID's Amended Application. The plan includes a description of each road segment and maps showing the location of each road segment.

5.0 Area within the Existing FERC Project Boundary

The existing FERC Project Boundary, consisting of lands necessary for the safe operations and maintenance of the Project and other purposes, such as recreation, shoreline control, and protection of environmental resources, encompasses 6,252.6 acres of land in Nevada, Placer, and Sierra counties, California.

Within the upper elevations of the boundary (i.e., above El. 3,000 ft), major landholders include the Forest Service, timber companies (e.g., Sierra Pacific Industries, Inc.), PG&E, and NID. Lands around mid-elevation along the Bear River are primarily United States owned land, administered by BLM. Lands in the lower Project elevations contain private resident tracts and are near urban areas. Table 5.0-1 summarizes, by Project Development, land areas and ownership within the existing FERC Project Boundary.[2] The Bowman-Spaulding Transmission Line, part of the Bowman Development, is shown separately.

Table 5.0-1. Summary of land ownership within the Yuba-Bear Hydroelectric FERC Project Boundary by Project Development.

Development	Forest Service (ac)	BLM (ac)	NID (ac)	Other Private (ac)	Total	
					(ac)	%
Bowman	1,283.8	--	2,348.9	142.3	3,775.0	60%
Dutch Flat	221.3	14.0	46.9	136.2	418.4	7%
Chicago Park	0.1	54.1	38.4	73.2	165.8	3%
Rollins	--	140.4	1,618.4	61.2	1,820.0	29%
Bowman-Spaulding Transmission Line	35.6	--	3.7	34.1	73.4	1%
Total	**1,540.8**	**208.5**	**4,056.3**	**447.0**	**6,252.6**	**100%**
Percent	**25%**	**3%**	**65%**	**7%**	**100%**	--

In general, the FERC Project Boundary is placed as a buffer to ensure that all Project facilities, features, and primary access roads have been encompassed. While there is no set distance that is

[2] Refer to Exhibit G, Section 1.1, for a detailed description of the data sources used to calculate land ownership within the FERC Project Boundary.

used for all types of facilities, the following ranges have been used for defining the FERC Project Boundary:

- The FERC Project Boundary around reservoirs is often placed at a contour line a set number of feet above the high water line. In several instances, the FERC Project Boundary around reservoirs is defined by surveyed metes and bounds that were meant to follow a contour line above the high water line and/or parcel boundary.
- The FERC Project Boundary around man-made water ways, including canals, flumes, tunnels, pipelines, and penstocks, is between 25 and 100 feet on each side of the waterway.
- The FERC Project Boundary is placed 25 feet on either side of transmission lines and roads.
- The FERC Project Boundary is always placed to encompass all recreation sites, facilities, and roads that are part of the Project.

5.1 Lands of the United States within the Existing FERC Project Boundary

As shown in Table 5.0-1, approximately 25 percent of the land (1,540.8 acres) within the FERC Project Boundary is owned by the United States and managed by the Forest Service as part of the TNF, and another 3 percent of the land (208.5 acres) is United States-owned land administered by BLM as the Sierra Resource Management Area. Table 5.1-1 identifies by Public Land Survey System Township, Range and Section (all sections in the Mount Diablo Baseline & Meridian) United States-owned land within the existing FERC Project Boundary.

Table 5.1-1. Lands of the United States enclosed within the FERC Project Boundary by Project Development and managing federal agency.

Ownership	Township	Range	Section	Total Acres
BOWMAN DEVELOPMENT				
Forest Service	18N	12E	2	0.8
			3	76.1
			4	32.3
			5	28.5
			8	17.3
			9	48.1
			11	0.5
			13	<0.1
			24	<0.1
		13E	6	12.0
			17	10.6
			18	67.6
			20	37.5
			21	26.4
	19N	12E	11	<0.1
			12	64.7
			13	<0.1
			14	25.3
			23	25.0
			26	21.7
			27	<0.1
			34	25.2

Table 5.1-1. (continued)

Ownership	Township	Range	Section	Total Acres
BOWMAN DEVELOPMENT (continued)				
Forest Service (continued)	19N (continued)	13E	6	<0.1
			17	<0.1
			18	129.1
			19	<0.1
			20	423.3
			28	1.3
			29	<0.1
			30	169.2
			31	<0.1
			32	41.3
			Forest Service - Subtotal	*1,283.8*
			Bowman Development - Total	**1,283.8**
BOWMAN-SPAULDING TRANSMISSION LINE				
Forest Service	17N	12E	6	8.3
			7	<0.1
			8	2.2
	18N		5	0.1
			8	5.2
			18	8.3
			19	<0.1
			30	7.8
			31	3.7
			Forest Service - Subtotal	*35.6*
			Bowman-Spaulding Transmission Line - Total	**35.6**
CHICAGO PARK DEVELOPMENT				
BLM	15N	10E	4	16.5
			5	<0.1
			6	26.5
	16N		27	<0.1
			33	<0.1
			34	11.1
			BLM - Subtotal	*54.1*
Forest Service	16N	10E	26	0.1
			Forest Service - Subtotal	*0.1*
			Chicago Park Development - Total	**54.2**
DUTCH FLAT DEVELOPMENT				
BLM	16N	10E	23	7.3
			27	6.7
			BLM - Subtotal	*14.0*
Forest Service	16N	10E	23	<0.1
			24	32.0
			26	13.8
			27	<0.1
		11E	18	30.1
			19	<0.1
	17N		1	<0.1
		12E	6	54.4
	18N	11E	36	29.6
		12E	8	19.8
			18	27.9
			19	<0.1
			30	13.7
			Forest Service - Subtotal	*221.3*
			Dutch Flat Development - Total	**235.3**

Table 5.1-1. (continued)

Ownership	Township	Range	Section	Total Acres
ROLLINS DEVELOPMENT				
BLM	15N	10E	6	11.1
			7	<0.1
		9E	10	17.9
			12	61.7
			13	<0.1
			14	49.7
			BLM - Subtotal	*140.4*
			Rollins Development - Total	**140.4**
			Total	**1,749.3**

Source: Exhibit G maps, based on best available public land ownership data sets.

6.0 Proposed Changes

6.1 Development Facilities

6.1.1 Rollins No. 2 Powerhouse

NID proposes to include one new generating facility in the new license: Rollins No. 2 Powerhouse. The new facility would more effectively capture the combined releases from Rollins Reservoir. The existing powerhouse consists of one vertical-axis, Francis turbine with a rated capacity of 12.15 MW at a head of 208 feet and maximum flow of 840 cfs. At this time, NID anticipates that the new powerhouse would be constructed entirely on privately-owned land adjacent to the existing powerhouse location in a lay down area just below the existing parking lot on the right bank of the river. The existing powerhouse would be unaltered and remain in full operation.

The current design concept for the new powerhouse includes a 58-foot-by-40-foot concrete building that would house a single Francis turbine with a maximum flow of 600 cfs and synchronous generator combination yielding a maximum capacity of 11.4 MW. This new facility would be a remotely operable, unmanned installation. The upgrade would require modifications to the existing penstock to allow for a new bifurcation to route flow to the new generation facility, and replacement of the Rollins Powerhouse Switchyard in order to route the new penstock. The upgrade would occur entirely within the existing FERC Project Boundary and affect less than 1 acre of NID-owned land.

A picture of the approximate location and an anticipated layout drawing of the proposed Rollins No. 2 Powerhouse are shown in Figures 6.1-1 and 6.1-2, respectively.

6.1.2 Project Reservoir Storage Modifications

NID does not propose any storage modifications to Project reservoirs. However, NID reserves the right to increase the gross and/or useable storage of Project reservoirs through means including, but not limited to, dredging and sluicing. In the event that a storage modification is

proposed over the term of the new license, NID will consult with and obtain all necessary permits from required local, state and federal agencies, and will file with FERC a Request for License Amendment.

Figure 6.1-1. Anticipated location of proposed Rollins No. 2 Powerhouse (existing Rollins Dam and Powerhouse are shown).

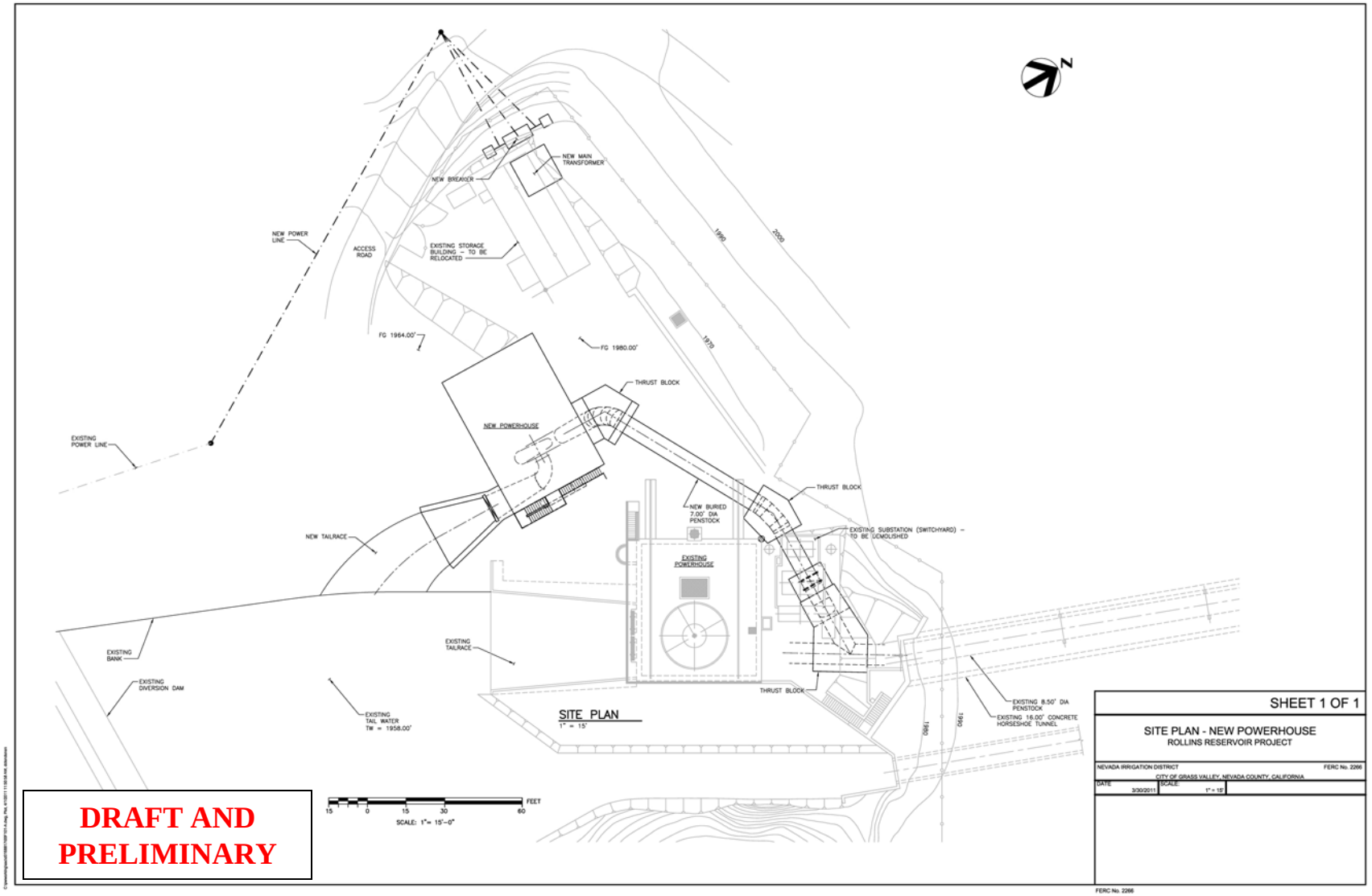


Figure 6.1-2. Anticipated layout of proposed Rollins No. 2 Powerhouse (existing Project features shown in grayscale).

6.2 Recreation Facilities

NID's proposed Project includes an Amended Recreation Facilities Plan, which is included in Amended Appendix E4. The plan includes many components including replacement and upgrade of existing recreation facilities and evaluation for new recreation facilities over the term of the new license. However, at this time, the plan includes the addition of the following specific new facilities:

- Jackson Meadows Reservoir
  - All Campgrounds: install animal-resistant food lockers at the remaining campsites that do not have such lockers.
  - East Meadow Campground: construct a pedestrian, single track trail (Class III, native surface and not designed to accessible standards) from the first loop of the campground to Pass Creek.
  - Pass Creek Overflow Campground: install a 1-unit vault restroom.
  - Pass Creek Boat Launch: construct an accessible trail on the shoreline from the boat launch parking area to the shoreline at Aspen Picnic Area.
  - Aspen Group Campground: construct a pedestrian, single track trail (native surface and not designed to accessible standards) from the group campground to the parking area at Aspen Picnic Area.
  - Woodcamp Picnic Area: develop road access and a loading/unloading area with accessible parking spaces and access to the shoreline restroom and picnic sites.
  - Woodcamp Complex: construct pedestrian, single-track connector trails (Class III, not designed to accessible standards) between the Project recreation facilities within the Woodcamp Complex (Fir Top, Findley, Woodcamp and Silvertip Group campgrounds; and Woodcamp Picnic Area); and a connector trail (to the same design standards) from the aforementioned connector trails to the non-Project Woodcamp Interpretive Trailhead.
  - Woodcamp Boat Launch: replace the existing Woodcamp Boat Launch facility to California Department of Boating and Waterways standards.

- Milton Diversion Impoundment:
  - Develop a shoreline day use area (Development Scale 2) including a gravel parking area for up to 5 vehicles with barriers; and a single-lane hand launch designed to accessible standards, as feasible.
  - Develop up to 6 rustic campsites (Development Scale 2) each with a designated parking spur/space setback from the shoreline, steel fire ring, and site marker.

- Bowman Lake:
  - Develop a day use parking area (native surface) for up to 10 vehicles on NID land with vehicle barriers and an informational board (2-panel) at Jackson Creek inflow along the north shoreline/Bowman Lake Road.
  - Designate up to 10 primitive campsites along the shoreline on NID land each with a picnic table, steel fire ring, animal-resistant food locker, parking spur/space with barriers, site marker, and resource protection signage.

- Sawmill Lake:
  - Develop a rustic, 10-unit family campground on NID land with a native surface circulation road, 2-unit vault restroom, entrance station, and campsites each with a table, fire ring, animal-resistant food locker, site marker, and vehicle spur (native surface) with barriers (using natural materials).
  - Develop a rustic (Development Scale 2) group campground on NFS land to accessible standards, as feasible, consisting of a: single group campsite for 25 people-at-one-time; native surface parking area for 10 vehicles with barriers (using natural materials); 1-unit vault restroom; and hand launch.

- Canyon Creek:
  - Install animal-resistant food lockers at campsites without animal-resistant lockers.

- Dutch Flat No. 2 Forebay:
  - Install an information kiosk

- Dutch Flat Afterbay:
  - If suitable land can be identified along the shoreline, NID will develop a day use area that may include such facilities as gravel parking, picnic tables, restroom and shoreline access trails

In addition, at this time, the plan includes the removal of the Administrative Site at Jackson Meadows Reservoir and the recreation road that provides access to it (see Table 4.1.4-2). Recently, the Administrative Site has been used by the Forest Service and the Forest Service's concessionaire to operate and maintain the recreation facilities. However, NID has never used or needed this site nor does NID have a future need for this site to operate and maintain the Project recreation facilities at Jackson Meadows Reservoir over the term of the new license.

6.3 Streamflow Gages

As listed in Tables 4.1.3-1, 4.2.3-1, and 4.4.3-1, the existing Project includes nine streamflow gages that NID uses to monitor compliance with minimum streamflows. Table 6.3-1 lists the five streamflow gages that NID proposes to add to the Project for the purpose of monitoring compliance with new minimum streamflow locations proposed by NID in this Amended Application. NID would continue to maintain and operate the streamflow gages listed in Tables 4.1.3-1, 4.2.3-1, and 4.4.3-1.

Table 6.3-1. Streamflow gages that NID proposes to add to the Project for the purpose of monitoring compliance with minimum streamflows.

Location	USGS Gage No.	NID's Gage No.	Gage Name	Approximate Location[1] (Latitude and Longitude)		Approximate Elevation (ft)
Texas Creek – Below Texas Creek Diversion Dam	--	YB-317	New	39°24'17"	120°40'32"	5,400
Clear Creek – Below Bowman-Spaulding Diversion Conduit	--	YB-318	New	39°22'51"	120°40'52"	5,350
Fall Creek – Below Fall Creek Diversion Dam	--	YB-319	New	39°22'24"	120°40'39"	5,350
Trap Creek – Below Bowman-Spaulding Diversion Conduit	--	YB-320	New	39°21'57"	120°40'48"	5,350
Rucker Creek – Below Rucker Creek Diversion Gate	--	YB-321	New	39°21'20"	120°39'52"	5,300

[1] This is an estimate of where the proposed gage will be located.

In addition, existing USGS gages 11414410 (Canyon Creek Below French Lake), 11414500 (Canton Creek Below Faucherie Lake) and 11414470 (Canyon Creek Below Sawmill Lake) listed in Table 4.1-2 are currently rated to measure up to 3 cfs, and will be improved to monitor compliance with NID's proposed minimum streamflows; and existing USGS gage 11421790 (Baer River Below Dutch Flat Afterbay Dam) listed in Table 4.2-2 will be improved for rating.

6.4 Roads

NID proposed to remove a segment of Chicago Park Forebay Road (Road ID #YBCPF_002 in Table 4.3.4-1) from the set of Primary Project access roads. This road segment is presently closed by an active landslide, and NID proposes to decommission this segment as it is not necessary for continued Project O&M.

NID proposed to remove the unnamed recreation road that provides access to the Jackson Meadows Administrative Site as detailed in Table 4.1.4-2. NID has never used this site nor has it used the recreation road that provides access to it and does not plan to use it in the future. NID proposes to decommission this recreation road as it is not necessary for continued Project O&M.

6.5 FERC Project Boundary

NID does not propose any changes to existing Yuba-Bear Hydroelectric Project FERC Project Boundary except for the following:

- The use of contours derived from the USGS National Elevation Dataset 1/3 arc second digital elevation model as a partial replacement to survey metes and bounds that are used in the existing license to define the FERC Project Boundary around Jackson Meadows Reservoir, Bowman Reservoir, French Lake, Jackson Lake, Sawmill Lake, Faucherie Lake, Dutch Flat Forebay, and Dutch Flat Afterbay. Where the derived contour lines exceeded 200 horizontal

feet from the Project Reservoir normal maximum water surface, 200 foot horizontal buffers of the aforementioned reservoir's maximum water surface were used to define the Project Boundary.

- The removal of the area that incorporates the mineral survey area south of Dutch Flat Afterbay
- The removal of the area that incorporates the administrative site at Jackson Meadows Reservoir and the recreation road that provides access to it.
- The modification of the boundary to more accurately contain and encompass several recreation sites (East Meadow Campground, Fir Top Campground, Bowman Lake Campground and Canyon Creek Area Campground)
- The addition of the area which incorporates the Primary Project portion of French Lake Dam Road (Forest Service Road 843-20), including a right-of-way of 20 feet on road centerline
- The addition of the area which incorporates the Primary Project portion of Milton Pipeline Access Road, including a right-of-way of 20 feet on road centerline
- The addition of the area which incorporates the Primary Project portion of Wilson Creek Diversion Access Road, including a right-of-way of 20 feet on road centerline
- The addition of the area which incorporates the Primary Project portion of Bunkhouse Road, including a right-of-way of 20 feet on road centerline
- The addition of the area which incorporates the Primary Project portion of Texas Creek Diversion Access Road, including a right-of-way of 20 feet on road centerline
- The addition of the area which incorporates the Primary Project portion of Bowman-Spaulding Canal Berm Road, including a right-of-way of 20 feet on road centerline
- The addition of the area which incorporates the Primary Project portion of Bowman-Spaulding Canal Access Road, including a right-of-way of 20 feet on road centerline
- The addition of the area which incorporates the Primary Project portion of Stump Canyon Siphon Intake Access Road, including a right-of-way of 20 feet on road centerline
- The addition of the area which incorporates the Primary Project portion of Canyon Siphon Low Level Valve Access Road, including a right-of-way of 20 feet on road centerline
- The addition of the area which incorporates the Primary Project portion of "B" Alarm Road, including a right-of-way of 20 feet on road centerline
- The addition of the area which incorporates the Primary Project portion of Chicago Park Forebay Road, including a right-of-way of 20 feet on road centerline
- The addition of the area which incorporates the Primary Project portion of Chicago Park Powerhouse Access Road, including a right-of-way of 20 feet on road centerline

Table 6.5-1 summarizes land ownership within the existing and proposed Yuba-Bear Hydroelectric Project FERC Project Boundaries.

Table 6.5-1. Summary of land ownership within the existing and proposed Yuba-Bear Hydroelectric FERC Project Boundary by Project Development.[1]

Development	Forest Service (ac)	BLM (ac)	NID (ac)	Other Private (ac)	Total	
					(ac)	Percent
EXISTING FERC PROJECT BOUNDARY						
Bowman	1,283.8	--	2,348.9	142.3	3,775.0	60%
Dutch Flat	221.3	14.0	46.9	136.2	418.4	7%
Chicago Park	0.1	54.1	38.4	73.2	165.8	3%
Rollins	--	140.4	1,618.4	61.2	1,820.0	29%
Bowman-Spaulding Transmission Line	35.6	--	3.7	34.1	73.4	1%
Total	**1,540.8**	**208.5**	**4,056.3**	**447.0**	**6,252.6**	**100%**
Percent	**25%**	**3%**	**65%**	**7%**	**100%**	--
PROPOSED FERC PROJECT BOUNDARY						
Bowman	1,202.2	--	2,313.9	112.8	3,628.9	60%
Dutch Flat	205.1	13.9	53.1	89.4	361.5	6%
Chicago Park	--	77.0	48.1	70.3	195.4	3%
Rollins	--	140.2	1,690.6	7.3	1,838.1	30%
Bowman-Spaulding Transmission Line	28.2	--	1.9	28.2	58.3	1%
Total	**1,435.5**	**231.1**	**4,107.6**	**308.0**	**6,082.3**	**100%**
Percent	**24%**	**4%**	**67%**	**5%**	**100%**	--
DIFFERENCE BETWEEN EXISTING AND PROPOSED FERC PROJECT BOUNDARIES						
Difference	**-105.3**	**22.6**	**51.4**	**-139.0**	**-170.3**	**-2.80%**

[1] The Bowman-Spaulding Transmission Line, part of the Bowman Development, is shown separately because it is a linear facility.

Table 6.5-2 identifies by Public Land Survey System Township, Range and Section (all sections in the Mount Diablo Baseline & Meridian) United States-owned land within the existing FERC Project Boundary.

Table 6.5-2. Lands of the United States enclosed within the proposed FERC Project Boundary by Project Development and managing federal agency.

Ownership	Township	Range	Section	Total
BOWMAN DEVELOPMENT				
Forest Service	18N	12E	2	2.0
			3	62.2
			4	20.9
			5	22.4
			8	2.6
			9	24.4
			11	20.3
			12	7.3
			13	<0.1

Table 6.5-2. (continued)

Ownership	Township	Range	Section	Total
BOWMAN DEVELOPMENT (continued)				
Forest Service (continued)	18N	12E	6	3.7
			8	0.4
			17	8.3
			18	60.5
			20	47.6
			21	33.0
	19N	12E	11	<0.1
			12	69.1
			13	<0.1
			14	27.6
			23	6.3
			26	22.4
			27	<0.1
			34	25.2
		13E	6	<0.1
			17	<0.1
			18	126.9
			19	<0.1
			20	434.2
			21	<0.1
			28	1.0
			29	<0.1
			30	142.0
			31	<0.1
			32	31.9
			Forest Service - Subtotal	**1,202.2**
			Bowman Total	**1,202.2**
DUTCH FLAT DEVELOPMENT				
Forest Service	16N	10E	23	<0.1
			24	35.2
			26	14.6
			27	<0.1
		11E	17	<0.1
			18	30.3
			19	<0.1
	17N		1	<0.1
		12E	6	29.1
	18N	11E	25	<0.1
			36	29.8

Table 6.5-2. (continued)

Ownership	Township	Range	Section	Total
DUTCH FLAT DEVELOPMENT (continued)				
Forest Service (continued)	18N	12E	8	23.4
			18	28.3
			19	<0.1
			30	14.4
			Forest Service - Subtotal	**205.1**
BLM	16N	10E	23	7.3
			27	6.6
			BLM - Subtotal	**13.9**
			Dutch Flat Total	**219.0**
CHICAGO PARK DEVELOPMENT				
BLM	15N	10E	4	16.3
			5	<0.1
			6	47.8
	16N		27	<0.1
			33	<0.1
			34	12.9
			BLM - Subtotal	**77.0**
			Chicago Park Total	**77.0**
ROLLINS DEVELOPMENT				
BLM	15N	10E	6	3.6
			7	<0.1
		9E	10	17.9
			12	67.3
			13	<0.1
			14	51.4
			BLM - Subtotal	**140.2**
			Rollins Total	**140.2**
Forest Service	17N	12E	6	6.9
			7	<0.1
			8	1.8
	18N		8	3.2
			18	6.7
			19	<0.1
			30	6.5
			31	3.1
			Forest Service - Subtotal	**28.2**
			Bowman-Spaulding Transmission Line Total	**28.2**
			Total	**1,666.6**

7.0 References Cited

de Rubertis. 2002. 2001 Review of Safety, Bowman North Dam, FERC No. 2266, Yuba-Bear Project, Nevada Irrigation District, Colfax, California.

_____. 2002. 2001 Review of Safety, Bowman South Dam, FERC No. 2266, Yuba-Bear Project, Nevada Irrigation District, Colfax, California.

_____. 2002. 2001 Review of Safety, Dutch Flat Afterbay Dam, FERC No. 2266, Yuba-Bear Project, Nevada Irrigation District, Colfax, California.

_____. 2002. 2001 Review of Safety, Dutch Flat No. 2 Forebay Dam, FERC No. 2266, Yuba-Bear Project, Nevada Irrigation District, Colfax, California.

_____. 2002. 2001 Review of Safety, Faucherie Dam, FERC No. 2266, Yuba-Bear Project, Nevada Irrigation District, Colfax, California.

_____. 2002. 2001 Review of Safety, French Lake Dam, FERC No. 2266, Yuba-Bear Project, Nevada Irrigation District, Colfax, California.

_____. 2002. 2001 Review of Safety, Jackson Lake Dam, FERC No. 2266, Yuba-Bear Project, Nevada Irrigation District, Colfax, California.

_____. 2002. 2001 Review of Safety, Jackson Meadows Dam, FERC No. 2266, Yuba-Bear Project, Nevada Irrigation District, Colfax, California.

_____. 2002. 2001 Review of Safety, Rollins Dam, FERC No. 2266, Yuba-Bear Project, Nevada Irrigation District, Colfax, California.

_____. 2002. 2001 Review of Safety, Sawmill Dam, FERC No. 2266, Yuba-Bear Project, Nevada Irrigation District, Colfax, California.

Federal Energy Regulatory Commission (FERC). Date Annotated License Conditions in Existing Federal Energy Regulatory Commission License.

_____. Exhibit Drawings, FERC Project No. 2266 (latest revisions).

Henwood Energy Services, Inc. 2002. Emergency Action Plan, Yuba-Bear River Project, FERC Project No. 2266 – CA, Vols 1 and 2.

United States of America Federal Power Commission (FPC). 1963. Project No. 2266, Order Issuing License (Major).

United States Geological Survey (USGS). 2002. Water Resources Data, California Water Year 2002, Vol 4. Northern Central Valley Basins and the Great Basin from Honey Lake Basin to the Oregon State Line.

Page Left Blank

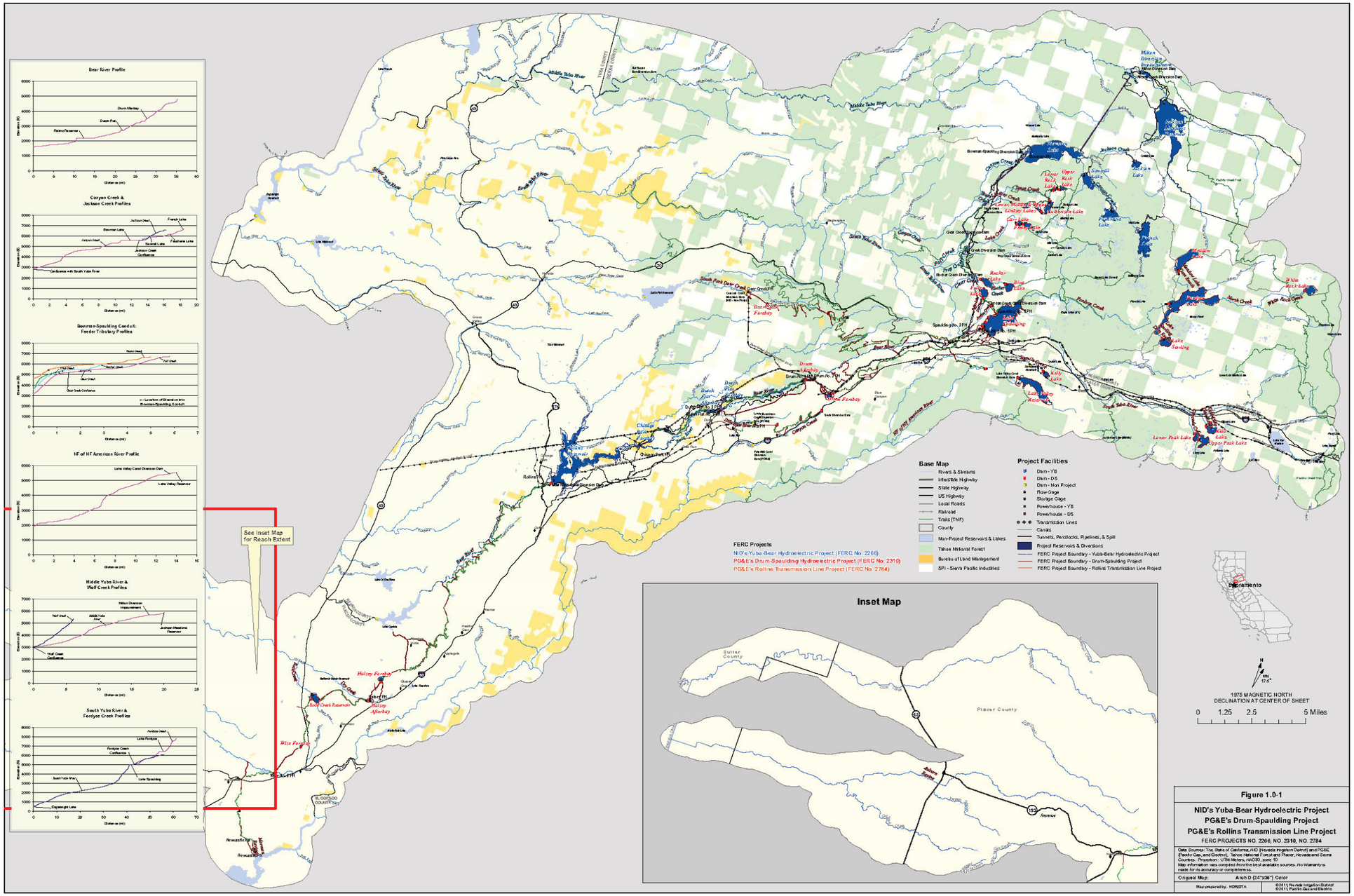


Figure 4.0-2. Yuba-Bear Hydroelectric Project Vicinity.

Page Left Blank

Amended Application for a New License
Major Project – Existing Dam

Amended Exhibit E
Environmental Report

AMENDED SECTION 7 – NID'S ECONOMIC ANALYSIS
AMENDED APPENDIX E3 – NID'S PROPOSED MEASURES AND RATIONALE STATEMENTS
AMENDED APPENDIX E4 – NID'S PROPOSED IMPLEMENTATION PLANS
AMENDED APPENDIX E5 – NID'S MISCELLANEOUS INFORMATION REALTED TO PROPOSED MEASURES
AMENDED APPENDIX E12 – LICENSEES' OPERATIONS MODEL AND HYDROLOGY INFORMATION

Yuba-Bear Hydroelectric Project
FERC Project No. 2266-096

Prepared by:
Nevada Irrigation District
1036 West Main Street
Grass Valley, CA 95945
www.nidwater.com

June 2012

AMENDED SECTION 7

NID'S ECONOMIC ANALYSIS YUBA-BEAR HYDROELECTRIC PROJECT

Background Regarding This Amended Section 7

On April 15, 2011, Nevada Irrigation District (NID or Licensee) filed with the Federal Energy Regulatory Commission (FERC or Commission) an Application for License for a Major Project - Existing Dam (Final License Application, or FLA) for NID's Yuba-Bear Hydroelectric Project, Project 2266 (Project). The FLA included Section 7, *NID's Economic Analysis – Yuba-Bear Hydroelectric Project*, to Exhibit E, *Environmental Report*.

On January 19, 2012, FERC issued a Notice of Application Accepted for Filing, Soliciting Motions to Intervene and Protests, Ready for Environmental Analysis, and Soliciting Comments, Recommendations, Preliminary Terms and Conditions, and Preliminary Fishway Prescriptions (REA Notice). Part 'p' of the REA Notice stated that "*Final amendments to the application must be filed with the Commission no later than 60 days from the issuance date of this notice.*" FERC subsequently extended the deadline to June 18, 2012.

In conformance with 18 CFR § 5.27, NID files with FERC this Amended Section 7 to Exhibit E as part of NID's Amended Application (Amended Application).[1]

This Amended Section 7 includes seven parts. Section 7.1 describes NID's approach to the economic analysis, including with regards to use of the Commission's current cost method, the development of unit values of peak and off-peak power, and use of NID's and Pacific Gas and Electric Company's (PG&E) HEC-ResSim Yuba-Bear Water Balance/Operations Model to estimate the amount of power that would be generated by the Project under the No Action Alternative and NID's proposed Project, as amended. Sections 7.2 and 7.3 provide costs and benefits related to the No Action Alternative and NID's proposed Project, as amended, respectively. Section 7.4 describes any other proposed alternatives. Section 7.5 compares the costs and benefits of the various alternatives. Section 7.6 discusses other economical considerations, including water supply and air quality. Section 7.7 lists references used in Section 7.

[1] Since the Project economic information in Section 7 was very similar to the Project economic information provided in Exhibit D, *Statement of Cost and Financing*, of NID's FLA, this Amended Application contains only amended Section 7. NID requests FERC rely on the economic information in Amended Section 7 for Project economics as they pertain to the Amended Application.

7.1 Approach

7.1.1 Current Cost Method

Under the Commission's approach to evaluating the economics of hydropower projects as articulated in Mead Corporation, Publishing Paper Division (72 FERC ¶ 61,072, July 13, 1995), the Commission employs a "current cost approach" in that all costs are presented in current dollars (e.g., no consideration for potential future power costs, inflation, escalation, or deflation beyond the license issuance date; and costs to be expended over the license term are summed and normalized as current dollars). The Commission's current cost economic analysis provides a general estimate of the potential power benefits and costs of the proposed project and reasonable alternatives, including the No Action Alternative. The estimate helps to support an informed decision concerning what is in the public interest with respect to a new license. NID has prepared this Amended Section 7 using the Commission's current cost method. All costs are provided in 2010 United States (U.S.) dollars, and are predicated on a new license with a 30-year license term.

7.1.2 Unit Values of Power

Under California Renewable Portfolio Standards regulations (Senate Bill X1-2, signed by Governor Brown in April 2011), California investor-owned utilities, electric service providers, and community choice aggregators must increase procurement from eligible renewable energy resources to 33 percent of total procurement by 2020. Some Project facilities qualify as RPS-eligible generating units.

7.1.2.1 RPS-Eligible Peak and Off-Peak Power Values

The California Public Utility Commission (CPUC) periodically publishes market price referents (MPR), which are an estimation of the long-term market price of electricity used in evaluating bid products received during RPS-eligible power solicitations. The MPR represents "*the levelized price at which the proxy power plant revenues exactly equal the expected proxy power plant costs on a net-present value basis*." As a reference, the CPUC's estimated 25-year levelized 2013 MPR is 11.2 cents per kilowatts per hour (kWh).

NID assumed peak and off-peak prices of 11.74 cents per kWh and 10.90 cents per kWh, respectively, for the value of power from NID's RPS-eligible Bowman, Dutch Flat No. 2 and Rollins powerhouses, which qualify as RPS-eligible generating units because each has a nameplate capability of less than 30 MW.[2]

[2] Peak and off-peak pricing for RPS-eligible generating units are based on the spread of peak and off-peak pricing for non-RPS-eligible generating units. The scaling factors for these values are then applied to the 2013 MPR to estimate a peak and off-peak spread for RPS-eligible generating units.

7.1.2.2 Non-RPS-Eligible Peak and Off-Peak Power Values

The CPUC publishes average monthly short run avoided costs (SRAC) by time of use and month, which are reasonable proxies for the value of non-RPS power. Table 7.1.2-1 lists the monthly peak, partial-peak, off-peak, and super off-peak values of SRAC for 2011. Table 7.1.2-2 describes the time of use definitions used in Table 7.2.1-1.

Table 7.1.2-1. Calendar Year 2011 CPUC-published SRACs (cents per kWh.)

Figure D.8.0-1. Historical CPUC-published SRACs.						
Effective Period	**Seasonal Period**	**Peak**	**Partial-Peak**	**Off-Peak**	**Super Off-Peak**	**Seasonal Average**
January 1 - 31, 2011	B	-	4.364	4.198	4.017	4.2284
February 1 - 28, 2011	B	-	4.443	4.274	4.090	4.3055
March 1 - 31, 2011	B	-	4.132	3.962	3.804	4.0042
April 1 - 30, 2011	B	-	4.420	4.247	4.069	4.2827
May 1 - 31, 2011	A	4.521	4.338	4.187	4.016	4.2449
June 1 - 30, 2011	A	4.580	4.395	4.225	4.068	4.3005
July 1 - 31, 2011	A	4.743	4.551	4.402	4.213	4.4534
August 1 - 31, 2011	A	4.661	4.473	4.298	4.141	4.3769
September 1 - 30, 2011	A	4.312	4.138	3.988	3.830	4.0487
October 1 - 31, 2011	A	4.237	4.066	3.924	3.763	3.9781
November 1 - 30, 2011	B	-	3.827	3.683	3.523	3.7082
December 1 - 31, 2011	B	-	3.870	3.723	3.563	3.7502
Calculated Year 2011 Average	--	4.34 [1]		4.03 [2]		4.14

[1] Calculated as average of Peak prices during May-October, and Partial Peak prices in the remaining months.
[2] Calculated as weighted average of Off-Peak (7/11 weighting fraction) and Super Off-Peak (4/11 weighting fraction) monthly prices.

Table 7.1.2-2. Time of use definitions used in Table 7.1.2-1.

Time of Use Periods	Period A—Summer (May 1–October 31)	Period B—Winter (November 1–April 30)	Days Applicable
Peak	Noon–6:00 p.m.	NA	Weekdays except holidays
Partial-Peak	8:30 a.m.–Noon 6:00 p.m.–9:30 p.m.	8:30 a.m.–9:30 p.m.	Weekdays except holidays Weekdays except holidays
Off-Peak	9:30 p.m.–1:00 a.m. 5:00 a.m.–8:30 a.m. 5:00 a.m.–1:00 a.m.	9:30 p.m.–1:00 a.m. 5:00 a.m.–8:30 a.m. 5:00 a.m.–1:00 a.m.	Weekdays except holidays Weekdays except holidays Weekends and holidays
Super Off-Peak	1:00 a.m.–5:00 a.m.	1:00 a.m.–5:00 a.m.	All days

To estimate the value of peak power at the non-RPS-eligible Chicago Park Powerhouse, NID averaged the value of the SRAC Peak power values from May 2011 through October 2011 and Partial-Peak values from January 2011 through April 2011 and from November and December 2011, which equaled 4.34 cents per KWh. To estimate the value of off-peak power at the non-RPS-eligible Chicago Park Powerhouse, NID calculated the average of the SRAC Off-Peak and Super Off-Peak power values from January through December 2011. A weighting of 7/11 was applied to the Off-Peak average and a weighting of 4/11 was applied to the Super Off-Peak average, which yielded a weighted average of 4.03 cents per kWh.

7.1.3 HEC-ResSim Yuba-Bear Water Balance/Operations Model

NID has operated the Project since 1964. Over that time, operations and Project facilities have changed. Therefore, in some cases historical information may not provide the best picture of existing conditions. To better describe existing conditions (e.g., power generation) over a range of hydrologic conditions, NID and PG&E (Licensees[3]) developed a computerized water balance/operations model of the combined Yuba-Bear Hydroelectric Project and Drum-Spaulding Project (projects).

NID's proposed PM&E measures related to streamflows changed as result of discussions with Relicensing Participants four days prior to filing this Amended Application. The final streamflows are shown in Measure YB-AQR1 in Amended Appendix E3 to NID's Amended Application. NID has not had adequate time to complete its economic analysis, which will require NID re-run the HEC-ResSim Model using these final streamflows and estimate the capital cost and expenses to implement these streamflow measures. NID intends to complete this work and file with FERC a complete economic analysis, including the HEC-ResSim Model and costs, by mid August 2012.

7.2 No Action Alternative

7.2.1 Annual Costs

The No Action Alternative assumes continued operation of NID's Yuba-Bear Hydroelectric Project and PG&E's Drum-Spaulding Project with the terms and conditions that are included in the existing FERC licenses for these projects.

Annual costs associated with the No Action Alternative have not changed form those described in NID's FLA. Table 7.2.1-1 provides a summation of average annual costs for the Yuba-Bear Hydroelectric Project under the No Action Alternative. The costs are described in detail in Sections 7.2.1.1 through 7.2.1.8.

Table 7.2.1-1. Nevada Irrigation District's estimated average annual costs in 2011 U.S. dollars for continued operation of the Yuba-Bear Hydroelectric Project under the No Action Alternative.

Item	Annual Cost (2010 U.S. Dollars)
Capital Cost including Cost of Capital[1]	$1,000,000
Local, State and Federal Taxes and Fees[2]	$500,000
Annual Depreciation Expense[3]	$2,500,000
Operation and Maintenance Expenses[4]	$2,487,000
Transmission Costs[5]	$300,000

[3] NID and PG&E (jointly referred to as Licensees) are cooperating and coordinating with each other on their relicensing efforts for many reasons, including: 1) the hydro projects are hydraulically and operationally interrelated and generally have physical features located in common watersheds; 2) the two projects have the same license expiration date; and 3) FERC declared in its May 22, 2008 Scoping Document 1 that it intends to prepare a multi-project environment impact statement for both projects.

Table 7.2.1-1. (continued)

Item	Annual Cost (2010 U.S. Dollars)
Operating Reserve[6]	$600,000
Power Purchase Contract Management[7]	$40,000
Cost to Prepare Application for a New License[8]	$367,000
Total	**$7,794,000**

[1] As described in Section 7.2.1.1.
[2] As described in Section 7.2.1.2.
[3] As described in Section 7.2.1.3.
[4] As described in Section 7.2.1.4.
[5] As described in Section 7.2.1.5.
[6] As described in Section 7.2.1.6.
[7] As described in Section 7.2.1.7.
[8] As described in Section 7.2.1.8.

7.2.1.1 Capital Expenses

Based on the past five years of existing Project operation, NID estimates Project capital expenses under the No Action Alternative over the term of the new license will average approximately $1,000,000 annually. These capital expenses do not include expenses related to environmental/recreational measures, which are discussed in Section 7.2.1.4 below. These non-environmental/recreational expenses are expected to vary from year to year based on the scheduling of capital work, which include life cycle costs such as runner replacements, generator rewinds, and oil circuit breakers replacements and routine replacement of vehicles and tools. The costs do not include contingency for unexpected repair work that are covered under the Operating Reserve. NID will most likely finance these capital expenses through revenues generated by operation of the Yuba-Bear Hydroelectric Project.

7.2.1.2 Local, State and Federal Taxes and Fees

As a public agency, NID is generally exempt from public taxation. However, NID does pay various fees, which NID anticipates will be about $500,000 per year in 2010 U.S. dollars. This includes fees to federal agencies for FERC administrative costs, use of U.S.-owned lands, stream gaging and special use permits (SUP) costs; fees to State of California agencies for dam safety and water rights, and fees to county agencies for public water systems at recreational facilities. NID assumes these expenses, with the possible exception of the SUP, will continue over the term of the new license under the No Action Alternative.

7.2.1.3 Depreciation Expense

The original Yuba-Bear Hydroelectric Project facilities were constructed with funds from the issuance of $62,000,000 in bonds with a maturity date of July 1, 2010 and an interest rate of 4.25 to 6.0 percent. The annual debt service for principal and interest was $3,128,000. The Bowman Powerhouse and related facilities were constructed with bonds originally totaling $16,000,000, also with a maturity date of July 1, 2010.

NID has depreciated Project plant and equipment using the straight-line method over the estimated useful lives of the following facilities: 50 years for dams; 50 years for buildings and turbines; 5-20 years for accessory equipment and features; and 5-20 years for equipment.

As of December 31, 2008, the total cost of existing plant and equipment of the Yuba-Bear Hydroelectric Project was $87,257,979 including construction in progress. The accumulated depreciation as of December 31, 2008 was $61,844,549.

Over the past five years, NID's annual depreciation expense has ranged from $1,978,175 to $2,898,224 and has averaged $2,500,000. NID assumes these depreciation expenses will continue over the term of the new license under the No Action Alternative.

7.2.1.4 Operation and Maintenance Expenses

NID anticipates that Project operation and maintenance (O&M) expenses under the No Action Alternative will be similar to current O&M costs over the past five years, but would also include recreation facilities improvements scheduled over the next license term which would have occurred under the No-Action Alternative. These costs have averaged $2,487,000, and are used in this analysis. The O&M costs include interim replacement costs, insurance, and administration and general expenses.

7.2.1.5 Transmission Access

For continued Project O&M and delivery of Project power under the No Action Alternative, NID must obtain transmission access. The special facilities charge for transmission line access and capacity is assumed to be a monthly tariff set at 1.14 percent of transmission line capital investment, including transmission line licensing costs. This is assumed to be $300,000 annually based on access over existing PG&E transmission lines.

7.2.1.6 Operating Reserve

In the first 5 years of the term of the new licensee under the No Action Alternative, NID plans to build an operating reserve of $15,000,000. As expended, the reserve would be re-established. Assuming the reserve is depleted once during the new license term, the annualized cost of creating and replenishing the reserve once over the 30-year term of the new license, the reserve equals $600,000 annually.

7.2.1.7 Management of Power Purchas e Contract

Over the term of the new license, NID plans to seek out and enter into power purchase contracts for the sale of Project power. Besides the costs of entering into the contracts, NID must also manage the new contracts. Cost for this task is assumed to be $40,000 annually.

7.2.1.8 Cost to Prepare License Application

To date, NID has expended about $9,000,000 to prepare this Application. These costs include NID's internal administrative costs, costs spent on outside consultants including the cost to complete the relicensing studies, and the cost for the pre-filing consultation process with the resource agencies and other Relicensing Participants through April 2011. NID's cost to complete the relicensing process may be as high as an additional $2,000,000 if, as provided under the Energy Policy Act, evidentiary trial-type hearings occur and parties choose to offer alternative measures. Assuming these costs are recovered over a 30-year term, average annual costs under the No Action Alternative would be $367,000.

7.2.2 Annual Generation

Table 7.2.2-1 provides a summary of anticipated annual generation by powerhouse and Water Year type under the No Action Alternative based on a run of Licensees' HEC-ResSim Yuba-Bear Water Balance/Operations Model.

Table 7.2.2-1. Nevada Irrigation District's estimated average annual generation in gigawatt-hours per year (GWh/yr) for continued operation of the Yuba-Bear Hydroelectric Project under the No Action Alternative. [SOURCE: Base Case Model Run of HEC-ResSim Yuba-Bear Water Balance/Operations Model, Amended Appendix E12]

Powerhouse and Water Year Type	Annual Generation Under No Action Alternative		Maximum Capability
	GWh/yr	Plant Factor	GWh/yr
BY POWERHOUSE			
Bowman	12.1	0.33	36.3
Dutch Flat No. 2	48.4	0.21	227.8
Chicago Park	139.6	0.38	363.5
Rollins	66.2	0.59	112.1
BY WATER YEAR TYPE			
Critically Dry	105	0.12	739.7
Dry	182	0.22	
Below Normal	279	0.34	
Above Normal	306	0.39	
Wet	387	0.44	
Total	**266**	**0.36**	--

7.2.3 Net Benefits

Table 7.2.3-1 provides the anticipated annual net benefits of the No Action Alternative.

Table 7.2.3-1. Summary of annual net benefits of continued operation of the Yuba-Bear Hydroelectric Project under the No Action Alternative.

Net Benefits	No Action Alternative
CAPACITY (MW)	
Nameplate (@ 0.9 power factor)	79.32
ANNUAL POWER VALUE	
Annual Generation – GWh/yr	266
Energy Benefits	--
On-Peak Energy Value	$11,244,583

Table 7.2.3-1. (continued)

Net Benefits	No Action Alternative
ANNUAL POWER VALUE (continued)	
Off-Peak Energy Value	$8,995,560
Total 2011 U.S. Dollars	$20,240,143
Average 2011 U.S. Dollars/MWh	76
ANNUAL COST	
Total 2011 U.S. Dollars	$7,794,000
Average 2011 U.S. Dollars/MWh	29
ANNUAL NET BENEFIT	
Total 2011 U.S. Dollars	$12,446,000
Average 2011 U.S. Dollars/MWh	47

7.3 NID's Proposed Project, as Amended

NID proposed 32 PM&E measures in its April 2011 FLA. As shown in NID's Amended Appendix E3, based on meetings with Relicensing Participants and additional analysis, NID is: 1) amending 15 of the protection, mitigation and enhancement (PM&E) measures NID proposed in its FLA; 2) adding 10 PM&E measures that were not included in the FLA; 3) retaining 12 PM&E measures; and 4) deleting 5 PM&E measures.

NID's proposed PM&E measures related to streamflows changed as result of discussions with Relicensing Participants four days prior to filing this Amended Application. The final streamflows are shown in Measure YB-AQR1 in Amended Appendix E3 to NID's Amended Application. NID has not had adequate time to complete its economic analysis, which will require NID re-run the HEC-ResSim Model using these final streamflows to estimate generation effects and estimate the capital cost and expenses to implement these streamflow measures. NID intends to complete this work and file with FERC a complete economic analysis of its proposed Project, as amended, including the HEC-ResSim Model, by mid August 2012.

7.4 Alternative Proposals

As explained more fully in Appendix E2 of NID's April 2011 FLA, NID did not identify any fully developed alternative proposals in the eight comment letters that were filed in response to NID's DLA. Refer to Appendix E2 of the FLA for additional discussion.

7.5 Comparison of No Action Alternative and NID's Proposed Project, as Amended

Comparison of the No Action Alternative and NID's proposed Project will be included in the supplemental economic information submittal referenced above. NID expects to file with FERC this information by mid-August.

7.6 Other Economic Considerations

NID will include in its supplemental economic filing referenced above a discussion of the other economic considerations related to NID's proposed Project, as amended.

7.7 References Cited

None.

Page Left Blank

AMENDED APPENDIX E3

NID's Proposed Measures – Yuba-Bear Hydroelectric Project

In conformance with 18 CFR § 5.27, the Nevada Irrigation District (NID or Licensee) files with the Federal Energy Regulatory Commission (FERC or Commission) this Amended Appendix E3 as part of NID's Amended Application (Amended Application) for NID's Yuba-Bear Hydroelectric Project, Project 2266 (Project).

This Amended Appendix E3 fully replaces Appendix E3, *NID's Proposed Measures – Yuba-Bear Hydroelectric Project*, to Exhibit E, *Environmental Report*, in NID's Exhibit E of NID's April 15, 2011 Application for License for a Major Project - Existing Dam (Final License Application, or FLA) for the Project.

This Amended Appendix E3 is divided into three sections. Section 1 provides background information. Section 2 provides, by resource area, the operations and management activities NID currently proposes to undertake as conditions of the new license for the Project for the purpose of protecting or mitigating impacts that would otherwise result from the proposed Project, or for the purpose of enhancing resources that would be affected by the Project (PM&E measures, or measures).[1] Section 3 provides a description of the rationale for each currently proposed PM&E measure including, if the PM&E measure was amended or added, why it was amended or added.

1.0 Background Regarding This Amended Appendix E3

On April 15, 2011, NID filed with FERC a FLA for the Project, which included Appendix E3, *NID's Proposed Measures – Yuba-Bear Hydroelectric Project*, to Exhibit E, *Environmental Report*, which described NID's 31 proposed PM&E measures.

On January 19, 2012, the Commission issued a *Notice of Application Accepted for Filing, Soliciting Motions to Intervene and Protests, Ready for Environmental Analysis, and Soliciting Comments, Recommendations, Preliminary Terms and Conditions, and Preliminary Fishway Prescriptions* (REA Notice). Part 'p' of the REA Notice stated that "Final amendments to the application must be filed with the Commission no later than 60 days from the issuance date of this notice" (i.e., by March 20, 2012).

On February 28, 2012, the Commission issued a notice extending the deadline for filing of final application amendments to June 18, 2012 so that NID and Pacific Gas and Electric Company[2]

[1] Refer to Amended Exhibit A for a full description of the existing Project and NID's proposed changes.
[2] NID has coordinated the relicensing of its Yuba-Bear Hydroelectric Project with PG&E's relicensing of its Drum-Spaulding Project (FERC Project No. 2310).

(PG&E) and Relicensing Participants[3] could continue discussions with the goal of reaching agreement with as many Relicensing Participants as possible on as many PM&E measures as possible. To this end, NID and PG&E held more than 120 meetings with Relicensing Participants since NID filed its FLA in April 2011.

Table E3-1 lists NID's currently proposed PM&E measures, including whether the PM&E measure in Amended Appendix E3 was:

- included in NID's FLA and is unchanged in Amended Appendix E3;
- included in NID's FLA and is amended in Amended Appendix E3; or
- not included in NID's FLA.

Table E3-1. Measures included in NID's proposed Yuba-Bear Hydroelectric Project.

Designation of Proposed Measure	Measure in FLA, and Unchanged	Measure in FLA, and Amended	Measure Not in FLA, and Added	Description of Measure
GENERAL				
YB-GEN1	--	X	--	Annual Consultation with Forest Service and BLM
YB-GEN2	--	X	--	Annual Employee Training
YB-GEN3	--	X	--	Annual Review of Special-Status Species Lists and Assessment of New Species on Federal Land
YB-GEN4	--	X	--	Consultation Regarding New Ground Disturbing Activities on Federal Land
YB-GEN5	--	X	--	Consultation Regarding New Facilities on Federal Land
YB-GEN6	X	--	--	Development and Implementation of Coordinated Operations Plan for Yuba-Bear Hydroelectric Project and Drum-Spaulding Project
YB-GEN7	--	X	--	Pesticide and Herbicide Use Restrictions on Federal Land (Was Measure YB-TR3, *Pesticide and Herbicide Use Restrictions on Federal Land*, in FLA)
GEOLOGY AND SOILS				
YB-G&S1	X	--	--	Development and Implementation of Rollins Upgrade Construction Erosion Control and Restoration Plan
YB-G&S2	X	--	--	Development and Implementation of Recreation Facilities Construction Erosion Control and Restoration Plan
YB-G&S3	X	--	--	Implement Clear and Trap Creeks Channel Stabilization Plans[1]
WATER RESOURCES				
YB-WR1	X	--	--	Development and Implementation of Rollins Upgrade Construction Hazardous Material Spill Prevention, Control and Countermeasures Plan
YB-WR2	X	--	--	Development and Implementation of Recreation Facilities Construction Hazardous Material Spill Prevention, Control and Countermeasures Plan

[3] In this relicensing, "Relicensing Participants" is a term that refers collectively to those parties that have actively participated in most Yuba-Bear Hydroelectric Project relicensing meetings. These parties include, but are not limited to: United States Department of Agriculture, Forest Service (Forest Service); United States Department of Interior, Bureau of Land Management (BLM); California Department of Fish and Game (CDFG); California State Water Resources Control Board (SWRCB); Foothill Water Network (FWN); California Sportfishing Protection Alliance (CSPA); American Whitewater (AW); Placer County Water Agency (PCWA), Pacific Gas and Electric Company (PG&E) and NID.

Table E3-1. (continued)

Designation of Proposed Measure	Measure in FLA, and Unchanged	Measure in FLA, and Amended	Measure Not in FLA, and Added	Description of Measure
AQUATIC RESOURCES				
YB-AQR1	--	X	--	Part 1. Water Year Types (Was Part 3, *Water Year Type*, in this measure in FLA)
	--	X	--	Part 2. Minimum Streamflows (Was Part 1, *Minimum and Target Streamflow Requirements and Measurements*, in this measure in FLA)
	--	--	X	Part 3. Bowman-Spaulding Diversion Conduit Outages and Drum-Spaulding Project's Drum Canal Outages
	--	--	X	Part 4. Milton Diversion Dam, Bowman-Spaulding Diversion Dam and Rollins Dam Overwintering Minimum Streamflow Adjustments
	--	--	X	Part 5. Wilson Creek Diversion Dam Flow Setting
	--	--	X	Part 6. Chicago Park Powerhouse Motoring
	--	--	X	Part 7. Milton Diversion Dam, Bowman-Spaulding Diversion Dam and Dutch Flat Diversion Dam Spill Cessation Schedules
	--	--	X	Part 8. Rollins Reservoir Elevation Control
YB-AQR2	X	--	--	Bowman Lake Fish Stocking
YB-AQR3	X	--	--	Rollins Reservoir Fish Stocking (Was YB-AQR7, *Fish Stocking in Rollins Reservoir*, in FLA)
YB-AQR4	--	--	X	Steephollow Creek Foothill-Yellow Legged Frog Monitoring
YB-AQR5	--	--	X	Implement Canal Fish Rescue Plan
YB-AQR6	--	--	X	Milton-Bowman Conduit Fish Entrainment
YB-AQR7	--	--	X	Rollins Dam Large Woody Material Management
YB-AQR8	--	--	X	Fall Creek Diversion Dam Minimum Streamflows
YB-AQR9	--	X	--	Minimum Streamflows Compliance Measurement (Was Part 5, *Streamflow Compliance Measurements*, in Measure YB-AQR1, *Streamflows*, in FLA)
TERRESTRIAL RESOURCES				
YB-TR1	--	X	--	Implement Non-Native Invasive Plant Management Plan[2]
YB-TR2	--	X	--	Implement Vegetation Management Plan on Federal Land[2]
YB-TR3	--	--	X	Bowman-Spaulding Transmission Line Avian Protection
YB-TR4	--	X	--	Consult When Replacing Canal Wildlife Escape Facilities and Wildlife Crossing Facilities
YB-TR5	--	X	--	Monitor Animal Losses in Project Canals
YB-TR6	X	--	--	Bat Management
YB-TR7	--	--	X	Implement Bald Eagle Management Plan[3]
RECREATION RESOURCES				
YB-RR1	--	X	--	Implement Recreation Facilities Plan[2]
YB-RR2	X	--	--	Provide Recreation Flow Information
YB-RR3	--	X	--	French Dam Supplemental Flows for Whitewater Boating
YB-RR4	--	--	X	Milton Diversion Dam Supplemental Flows for Whitewater Boating
YB-RR5	--	--	X	Bowman-Spaulding Diversion Dam Supplemental Flows for Whitewater Boating
LAND USE				
YB-LU1	--	X	--	Implement Transportation Management Plan[2]
YB-LU2	X	--	--	Implement Fire Prevention and Response Plan on Federal Land[1]

Table E3-1. (continued)

Designation of Proposed Measure	Measure in FLA, and Unchanged	Measure in FLA, and Amended	Measure Not in FLA, and Added	Description of Measure
CULTURAL RESOURCES				
YB-CR1	X	--	--	Implement Historic Properties Management Plan[4]
AESTHETIC RESOURCES				
YB-AER1	--	X	--	Implement Visual Resource Management Plan[2]
Subtotal	*12*	*15*[5]	*10*[5]	--
Total Measures	**37**			

[1] Unchanged plan included in Amended Appendix E4 of Amended Application.
[2] Amended plan included in Amended Appendix E4 of Amended Application.
[3] New (i.e., not included in FLA) plan included in Amended Appendix E4 of Amended Application.
[4] Plan included in Volume IV of FLA. Plan is considered Privileged.
[5] PM&E Measure YB-AQR1, *Streamflows*, is counted as an amended measure in the above table even though it has two parts that were amended and six parts that were added.

Table E3-2 lists four PM&E measures and two parts of Measure YB-AQR1, *Streamflows*, that were included in NID's FLA but are not included in this Amended Application. One of the measures, designated in the FLA as YB-AQR1, Part 2, *Ramping Rates*, has been deleted because changes in rates of flows is addressed in a new measure – YB-AQR1, Part 7, *Dam Spill Cessation Schedules*, and when queried by NID, agencies said they did not intend to recommend any other measures related to ramping. A second measure, designated in the FLA as YB-AQR1, Part 4, *Consecutive Dry Water Years*, was deleted because the addition in the Amended Appendix E3 of the Extreme Critically Dry Water Year (WY) to measure YB-AQR, Part 1, *Water Year Types*, adequately addresses dry water years. The remaining four PM&E measures in the FLA that were not included in the Amended Appendix E3 pertain to minimum pools. In the FLA, these were designated as: 1) YB-AQR3, *Jackson Meadows Reservoir Minimum Pool*; 2) YB-AQR4, *Milton Diversion Impoundment Normal Pool*; 3) YB-AQR5, *Rollins Reservoir Minimum Pool*; and 4) YB-AQR5, *Faucherie Lake Minimum Pool*. These measures were deleted because, under the proposed minimum streamflow proposal, reservoirs will need to be drawn down further than they have been drawn down historically, and when queried by NID, agencies said they did not intend to recommend any measures related to minimum pools. These six PM&E measures are not discussed below.

Table E3-2. Measures that were included in April 15, 2011 FLA and are not included in NID's Amended Application.

Designation of Proposed Measure	Measure in FLA, and not included in Amended Application	Description of Measure
YB-AQR1, Part 2	X	Ramping Rates
YB-AQR1: Part 4	X	Consecutive Dry Water Years
YB-AQR3	X	Jackson Meadows Reservoir Minimum Pool
YB-AQR4	X	Milton Diversion Dam Impoundment Normal Pool
YB-AQR5	X	Rollins Reservoir Minimum Pool
YB-AQR6	X	Faucherie Lake Minimum Pool
Total	**6**	--

2.0 NID's Proposed PM&E Measures

This section provides, by resource area, the PM&E measures NID currently proposes.

A statement of whether the PM&E measure is a continuation of a term or condition in the existing license in included in Section 2.[4]

To facilitate tracking changes between Appendix E3 in the FLA and this Amended Appendix E3, additions to PM&E measures included in the FLA are shown in underlined red text and NID's deletions to the measures included in the FLA are shown in strikeout red text. A clean version (i.e., no redlines) of NID's proposed PM&E measures is included in Attachment 1 to this Amended Appendix E3.

2.1 Administrative PM&E Measures

YB-GEN1 Annual Consultation with Forest Service and BLM[5]

Each year beginning in the first full calendar year after license issuance, Licensee shall consult with the Forest Service with regard to measures needed to ensure protection and utilization of resources on NFS land affected by the Project and with BLM with regards to measures needed to ensure protection and utilization of resources on public land administered by BLM affected by the Project. The date of the joint consultation meeting will be mutually agreed to by Licensee, the Forest Service and BLM but in general will be held 120 days prior to the beginning of the recreation season (i.e., no later than March 1) to facilitate implementation of flow management requirements and recreational management activities. At least 30 days in advance of the meeting, Licensee shall mail a letter to the Forest Service and BLM confirming the meeting location, time and agenda. At the same time, Licensee shall mail~~provide~~ a copy of the letter to the USFWS, NPS, SWRCB, CDFG, and interested tribes, who may participate in the meeting if they chose to do so. In addition, the Forest Service and BLM may invite others stakeholders to attend the meeting.

Consultation shall include, but not be limited to:

- A status report regarding implementation of license conditions;
- Results of any studies performed over the previous year in formats agreed to by the Forest Service, BLM and Licensee during development of the study plans;
- Review of any non-routine maintenance relevant to the Forest Service and BLM;
- Discussion of any foreseeable changes to Project facilities or features;

[4] Amended Appendix E4 provides for each NID proposed PM&E measure a schedule for implementation and a map of the Project showing where the measure applies.

[5] NID's proposed Measure YB-GEN1, *Annual Consultation with the Forest Service and BLM*, is similar to Article 69 in the existing license. Both measures require NID to consult with the Forest Service each year and prepare a summary of the consultation.

- Discussion of any necessary revisions or modifications to resource plans included in the license;
- Discussion of needed protection measures for species newly listed as threatened, endangered, or special-status or, changes to existing management plans that may no longer be warranted due to de-listing of species or, to incorporate new knowledge about a species requiring protection; and
- Discussion of elements of current year maintenance plans, such as road maintenance and hazard tree removal.

A record of the meeting shall be kept by Licensee and shall include any recommendations made by the Forest Service for the protection of NFS land and resources or by BLM for the protection of public land and resources administered by BLM. Licensee shall file the meeting record, if requested, with the Commission no later than 60 days following the meeting.

A copy of the record for the previous water year regarding instream flow, study reports, and other pertinent records shall be provided to the Forest Service and BLM by Licensee at least 60 days prior to the meeting date, unless otherwise agreed.

Copies of other reports related to monitoring, Project safety and non-compliance on NFS land and public land administered by BLM, as appropriate, shall be submitted to the Forest Service and BLM, as appropriate, concurrently with submittal to the CommissionFERC, with the goal of providing the material to the Forest Service and BLM no later than 90 days in advance of the annual meeting. These include, but are not limited to: any non-compliance report filed by Licensee, geologic or seismic reports, and structural safety reports for facilities.

YB-GEN2 Annual Employee Training

Licensee shall, beginning the first full calendar year after license issuance, annually perform employee awareness training. The goal of the training shall be to familiarize Licensee's operations and maintenance (O&M) staff with special-status species, non-native invasive plantsnoxious weeds and sensitive areas (e.g., special-status plant populations, non-native invasive plantsnoxious weed populations, and historic property sites) that are known to occur within the FERC Project Boundary on NFS land or and public land administered by BLM, procedures for reporting to the Forest Service and BLM, and Forest Service and BLM orders, as appropriate. Licensee shall provide to each O&M staff a confidential map showing these sensitive areas including GPS coordinates, as well as pictures and other guides to assist staff in recognizing special-status species and non-native invasive plantsxious weeds. It is not the intent of this measure that Licensee's O&M staff performs surveys or becomes specialists in the identification of special-status species or non-native invasive plantsxious weeds. Licensee shall direct its O&M staff to avoid disturbance to sensitive areas, and to advise all Licensee contractors to avoid sensitive areas. If Licensee determines that disturbance of a sensitive area is unavoidable, Licensee shall consult with the Forest Service or BLM, as appropriate, if the disturbance may occur to NFS land or public land administered by BLM prior to any ground disturbing activities in the sensitive area to minimize adverse effects to sensitive resources.

YB-GEN3 Annual Review of Special-Status Species Lists and Assessment of New Species on Federal Land

Licensee shall, beginning the first full calendar year after license issuance, in consultation with the Forest Service and BLM, annually review the current list of special-status plant and wildlife species (species that are Forest Service Sensitive species or Tahoe National Forest~~TNF~~ Watch List species that might occur on NFS land in the Project area, or species that are on BLM's Sensitive list that might occur on public land administered by BLM in the Project area) that may be directly affected by Project operations. When a species is added to one or more of the lists, Licensee, in consultation with the Forest Service or BLM, as appropriate, shall determine if the species or un-surveyed suitable habitat for the species is likely to occur on such NFS land or public land administered by BLM. For such newly added species, if the Forest Service or BLM, as appropriate, determines that the species is likely to occur on such NFS land or public land administered by BLM, as appropriate, in the Project area that may be directly affected by the Project, Licensee shall develop and implement a study plan in consultation with the Forest Service or BLM, as appropriate, to reasonably assess the effects of the Project on the species. Licensee shall prepare a report on the study including objectives, methods, results, Licensee's recommended resource measures where appropriate, and a schedule of implementation, and shall provide a draft of the final report to the Forest Service or BLM, as appropriate, for review and approval. Licensee shall file the report, including evidence of consultation, with the Commission and shall implement those resource management measures required by the Commission.

YB-GEN4 Consultation Regarding New Ground-Disturbing Activities on Federal Land

If Licensee proposes a ground-disturbing, Project-related activity on NFS land or public land administered by BLM that was not specifically addressed in the Commission's NEPA processes, Licensee, prior to filing the necessary documentation with FERC for FERC's approval, ~~Licensee~~ in consultation with the Forest Service or BLM, as appropriate, shall determine the potential Project-related effects and whether additional information is required to proceed with the planned ground-disturbing activity. Upon Forest Service's or BLM's request, as appropriate, Licensee shall enter into an agreement with the Forest Service or BLM, as appropriate, under which Licensee shall fund a reasonable portion of Forest Service's or BLM's staff time and expenses for staff activities related to the proposed ground-disturbing activity. CDFG shall be notified and, as appropriate, consulted on regarding any such new ground-disturbing activities.

YB-GEN5 Consultation Regarding New Facilities on Federal Land

Before taking actions to construct new Project features on NFS land or public land administered by BLM that may affect Forest Service special-status species (i.e. Forest Service sensitive and/or management indicator species) or their critical habitat on NFS land or BLM sensitive species or their critical habitat on public land administered by BLM, Licensee shall prepare and submit a biological evaluation (BE) for Forest Service or BLM approval, as appropriate. The BE shall evaluate the potential impact of the action on the species or its habitat. In coordination with the Commission, the Forest Service or BLM, as appropriate, may require mitigation measures for the protection of the affected species.

The biological evaluation shall:

- Include procedures to minimize adverse effects to special-status species.
- Ensure project-related activities shall meet restrictions included in site management plans for special-status species.
- Develop implementation and effectiveness monitoring of measures taken or employed to reduce effects to special-status species.

CDFG shall be notified and, as appropriate, consulted on regarding any such new facilities.

YB-GEN6 Development and Implementation of Coordinate Operations Plan for Yuba-Bear Hydroelectric Project and Drum-Spaulding Project

Licensee shall, within one year after issuance of new licenses for the Yuba-Bear Hydroelectric Project or Drum-Spaulding Project, whichever is later, file with the Commission for approval a Coordinated Operations Plan (Plan). Licensee shall develop the Plan in consultation with the licensee for the Drum-Spaulding Project. The purpose of the Plan shall be to provide for coordination between the Yuba-Bear Hydroelectric Project and Drum-Spaulding Project to assure implementation of flow–related measures in the two project licenses. Licensee shall file the Plan, with evidence of consultation with licensee of the Drum-Spaulding Project, with the Commission and Licensee shall implement those portions of the Plan approved by the Commission.

YB-GEN7 Pesticide and Herbicide Use Restrictions on Federal Land[6]

Licensee shall, beginning no later than 90 days of license issuance, not use pesticides or herbicides on NFS land or on public land administered by BLM or in areas affecting NFS land or public land administered by BLM to control undesirable woody and herbaceous vegetation, aquatic plants, insects, rodents, trash fish, etc., without the prior written approval of the Forest Service or BLM, as appropriate. During the annual consultation meeting described in Condition YB-GEN1, Licensee shall submit a request for approval of planned uses of pesticides or herbicides on NFS land or public land administered by BLM, as appropriate, for the upcoming year. Licensee shall provide information essential for review including specific locations and timeframes for application. Exceptions to this schedule may be allowed only when unexpected outbreaks of pests require control measures that were not anticipated at the time the report was submitted. In such an instance, an emergency request to the Forest Service or BLM, as appropriate and written approval by the Forest Service or BLM, as approval, may be made.

Licensee may also provide an Integrated Pest Management plan that describes planned pesticide use on a regular basis for the term of the license. Submission of this plan will not relieve

[6] NID's Proposed Measure YB-T3, *Pesticide and Herbicide Use Restrictions on NFS Land and Public Land Administered by BLM*, is similar to Article 77 in the existing license. Both measures require NID obtain Forest Service approval for use of herbicides and pesticides on NFS land.

Licensee of the responsibility of annual notification, ~~and~~ review and reporting in compliance with applicable reporting requirements.

Licensee shall use on NFS land and public land administered by BLM, as appropriate, only those materials registered by the USEPA for the specific purpose planned. On federal land administered by BLM, Licensee shall use only those materials documented to be herbicide formulations and adjuvant approved for use on BLM-administered public land. Licensee shall strictly follow label instructions in the preparation and application of pesticides and herbicides and disposal of excess materials and containers.

2.2 Geology and Soils PM&E Measures

YB-G&S1 Development and Implementation of Rollins Upgrade Construction Erosion Control and Restoration Plan

Licensee shall, in consultation with the appropriate agencies, prepare a Rollins Upgrade Construction Erosion Control and Stabilization Plan (Plan). Licensee shall provide the Plan to the appropriate agencies for a 30-day review and comment period. Licensee shall file the Plan, including evidence of consultation, with the Commission at least 90-days in advance of initiating construction for the Rollins Upgrade.

YB-G&S2 Development and Implementation of Recreation Facilities Construction Erosion Control and Restoration Plans

Licensee shall, in consultation with the appropriate agencies, prepare a Recreation Facilities Construction Erosion Control and Stabilization Plan (Plan). Licensee shall provide the Plan to the appropriate agencies for a 30-day review and comment period. Licensee shall file the Plan, including evidence of consultation, with the Commission at least 90-days in advance of initiating construction for the recreation facilities.

YB-G&S3 Implement Clear and Trap Creeks Channel Stabilization Plan

Licensee shall, within 1 year of license issuance, implement the Clear and Trap Creeks Channel Stabilization Plan included in Licensee's application for new license as approved by the Commission.

2.3 Water Resources

YB-WR1 Development and Implementation of Rollins Upgrade Construction Hazardous Materials Spill Prevention, Control and Countermeasure Plan

Licensee shall, in consultation with the appropriate agencies, prepare a Rollins Upgrade Construction Hazardous Materials Spill Prevention, Control and Countermeasure (SPCC) Plan (Plan). Licensee shall provide the plan to the appropriate agencies for a 30-day review and

comment period. Licensee shall file the Plan, including evidence of consultation, with the Commission at least 90-days in advance of initiating construction for the Rollins Upgrade.

YB-WR2 Development and Implementation of Recreation Facilities Construction Hazardous Materials Spill Prevention, Control and Countermeasure Plans

Licensee shall, in consultation with the appropriate agencies, prepare a Recreation Facilities Construction Hazardous Materials Spill Prevention, Control and Countermeasure (SPCC) Plan (Plan). Licensee shall provide the Plan to the appropriate agencies for a 30-day review and comment period. Licensee shall file the Plan, including evidence of consultation, with the Commission at least 90-days in advance of initiating construction for recreation facilities.

2.4 Aquatic Resources

YB-AQR1 Streamflows[7]

Part 1~~3~~. Water Year Types

Within 90 days of license issuance, Licensee shall in each year in each of the months of February, March, April, ~~and~~ May and October determine water year type as described in Table 1~~2~~ of this measure. Licensee shall use this determination in implementing articles and conditions of the license that are dependent on water year type. Water year types shall be defined as:

Table 1~~2~~. Water Year types for the Yuba-Bear Hydroelectric Project.

Water Year Type	DWR Forecast ~~Estimate~~ of Total Unimpaired Runoff in the Yuba River at Smartville in Thousand Acre-Feet or DWR Full Natural Flow Near Smartville for the Water Year in Thousand of Acre-Feet[1]
Extreme Critically Dry	Equal to or Less than 615
Critically Dry	616 to 900
Dry	901 to 1,460
Below Normal	1,461 to 2,190
Above Normal	2,191 to 3,240
Wet	Greater than 3,240

[1] DWR rounds the Bulletin 120 forecast to the nearest 1,000 acre-feet. The Full Natural Flow is provided to the nearest acre-foot, and Licensee will round DWR's Full Natural Flow to the nearest 1,000 acre-feet.

In each of the months of February, March, April and May, the water year type shall be based on California Department of Water Resources (DWR) water year forecast of unimpaired runoff in the Yuba River at Smartville as set forth in DWR's Bulletin 120 entitled "*Water Year Conditions in California*." DWR's forecast published in February, March and April shall apply from the 15th day of that month to the 14th day of the next month. From May 15 through October 14, the water year type shall be based on DWR's forecast published in May.

[7] The Forest Service, BLM and CDFG requested that NID's Yuba-Bear Hydroelectric Project's Amended Application Steamflows PM&E measure be as consistent as possible with PG&E's Drum-Spaulding Project's Amended Application Streamflow PM&E measure. To that end, NID has slightly reorganized the Parts in its proposed measure (e.g., *Water Year Types*, which was Part 3 in the FLA is Part 1 in this Amended Application), and tried to be as consistent as possible between the two measures.

From October 15 through February 14 of the following year, the water year type shall be based on the sum of DWR's monthly (not daily) full natural flow for the full water year for the Yuba River near Smartville as made available by DWR on the California Data Exchange Center (CDEC) in the folder named "FNF Sum." (Currently these data are available at: http://cdec.water.ca.gov/cgi-progs/stages/FNFSUM). If DWR does not make the full natural flow for the full water year available until after October 14 but prior to or on October 31, from 3 days after the date the full natural flow is made available until February 14 of the following year, the water year type shall be based on the sum of DWR's monthly full natural flow for the full water year as made available. If DWR does not make available the final full natural flow by October 31, the water year type shall remain unchanged through February 14 of the following year.

Part 21. Minimum ~~and Target~~ Streamflows ~~Requirements and Measurement~~

~~Minimum and Target streamflows are shown in Tables E3-21a and b. A Minimum Streamflow is a streamflow that Licensee shall meet, and failure to meet a Minimum Streamflow requirement shall be reported to FERC according to FERC regulations. A Target Streamflow is a streamflow that Licensee shall make a reasonable effort to achieve on a year-round basis. Failure to meet a Target Streamflow shall not result in a reportable event to FERC. Minimum and Target Sstreamflows shall commence within 90 days of license issuance, unless facility modifications are required.~~

~~Minimum and Target Sstreamflows may be comprised of any one or any combination of the following sources: releases through a Project dam (e.g., through a low-level outlet), turbine releases, controlled or uncontrolled spill over a Project dam spillway or canal waste gate, accretion, and other sources.~~

~~Minimum and Target Sstreamflows shall be measured in two ways: as the 24-hour average flow (mean daily flow) in cubic feet per second (cfs) and as a 15-minute flow (instantaneous flow) in cfs. The instantaneous flow is the flow value used to construct the mean daily flow, and is an instantaneous reading taken every 15 minutes. The mean daily flow is the average of instantaneous flow readings from midnight of one day to midnight of the next day. Licensee shall record instantaneous flow as required by USGS standards at all Target and Minimum Ssstreamflow compliance gages (Table 23). For Minimum Streamflows, which are listed in Tables 1a and 1b, the minimum instantaneous flow in any one day shall be at least 80 percent of the mean daily flow for that day where the prescribed Minimum Streamflow is equal to or less than 10 cfs, and at least 90 percent of mean daily flow where the prescribed Minimum Streamflow for that day is greater than 10 cfs.~~

~~The Minimum and Target Sstreamflow requirements are subject to temporary modification if required by equipment malfunction, as directed by law enforcement authorities, or in emergencies. An emergency is defined as an event that is reasonably out of the control of Licensee and requires Licensee to take immediate action, either unilaterally or under instruction by law enforcement or other regulatory agency staff, to prevent imminent loss of human life or substantial property damage. An emergency may include, but is not limited to, natural events~~

~~such as landslides, storms, wildfires; vandalism, malfunction or failure of Project works; and recreation accidents.~~

~~If Licensee temporarily modifies the requirements of this condition, Licensee shall make all reasonable efforts to promptly resume performance of the requirements and shall notify the Forest Service if the modification affects National Forest System (NFS) land or BLM if the modification affects public land administered by BLM within 48 hours of the modification.~~

~~Where facility modification is required to implement the efficient release of Minimum or Target Sstreamflows, Licensee shall submit applications for permits within 1 year after license issuance and complete such modifications as soon as reasonably practicable but no later than 2 years after receipt of all required permits and approvals for the facility modifications. Prior to completion of such required facility modifications and within 90 days after license issuance, Licensee shall make a good faith effort to provide the specified Minimum and Target Sstreamflows within the capabilities of the existing facilities.~~

Licensee shall meet the Minimum Streamflows shown in Table 2 of this measure.

Minimum Streamflows in this part of the measure shall mean the instantaneous flow except as otherwise provided below, and Licensee shall record instantaneous streamflow at all gages as required by USGS (Article 8 of FERC's Form L-5, Standard Articles):

- Minimum Streamflows may be temporarily modified for short periods upon consultation with CDFG, SWRCB, Forest Service, and BLM and approval by SWRCB and Forest Service or BLM, as applicable, and notification to FERC.
- Minimum Streamflows may be temporarily modified due to an emergency. An emergency is defined as an event that is reasonably out of the control of Licensee and requires Licensee to take immediate action, either unilaterally or under instruction of law enforcement, emergency services, or other regulatory agency staff, including actions to prevent the imminent loss of human life or damage to property. An emergency may include, but is not limited to: natural events such as landslides, storms, or wildfires; vandalism; malfunction or failure of Project works; or other public safety incidents. If the Minimum Streamflows are so modified, Licensee shall notify FERC, CDFG, SWRCB, Forest Service, and BLM as soon as reasonably possible, but no later than the end of the next business day (business days do not include weekends and federal or state holidays) after such modification.

Except as otherwise provided, Licensee shall implement Minimum Streamflows shown in Table 2 of the measure within 90 days of license issuance unless a facility modification or construction is necessary. Where a facility must be modified or constructed to allow compliance with the required Minimum Streamflows, including flow measurement facilities, except as otherwise provided, Licensee shall submit applications for permits to modify or construct the facility as soon as reasonably practicable but no later than 2 years after license issuance and will complete the work as soon as reasonably practicable but no later than 2 years after receiving all required permits and approvals for the work. During the period before facility modifications or

construction are completed, and starting within 90 days after license issuance, Licensee shall make a good faith effort to provide the specified Minimum Streamflows within the reasonable capabilities of the existing facilities.

Table 21a. Minimum Streamflows[1] in cubic feet per second (cfs) for the Yuba-Bear Hydroelectric Project by month and Water Year Type as described in Part 13 of this measure.

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
MIDDLE YUBA RIVER - BELOW JACKSON MEADOWS DAM (COMPLIANCE POINT: USGS STREAMFLOW GAGE 11407815)						
October	11	11 ~~10~~	13 ~~10~~	15 ~~12~~	20 ~~12~~	35 ~~12~~
November	11	11 ~~10~~	13 ~~10~~	15 ~~10~~	20 ~~10~~	35 ~~10~~
December	11	11 ~~10~~	13 ~~10~~	15 ~~10~~	20 ~~10~~	35 ~~10~~
January	11	11 ~~10~~	13 ~~10~~	15 ~~10~~	20 ~~10~~	35 ~~10~~
February	11	11 ~~10~~	13 ~~10~~	15 ~~10~~	25 ~~10~~	40 ~~10~~
March	11	11 ~~10~~	16 ~~10~~	25 ~~10~~	35 ~~10~~	60 ~~10~~
April	30	30 ~~50~~	30 ~~50~~	50	60 ~~50~~	100 ~~50~~
May	60	60 ~~10~~	75 ~~10~~	90 ~~10~~	110 ~~10~~	120 ~~10~~
June	21	21 ~~10~~	30 ~~10~~	50 ~~12~~	75 ~~12~~	100 ~~12~~
July	11	11 ~~10~~	16 ~~10~~	25 ~~12~~	35 ~~25~~	60 ~~25~~
August	11	11 ~~10~~	13 ~~10~~	15 ~~12~~	25 ~~25~~	40 ~~25~~
September	11	11 ~~10~~	13 ~~10~~	15 ~~12~~	25 ~~25~~	40 ~~25~~
MIDDLE YUBA RIVER - BELOW MILTON MAIN DIVERSION DAM (COMPLIANCE POINT: USGS STREAMFLOW GAGE 11408550)						
October	4	6 ~~3~~	6 ~~5~~	10 ~~12~~	10 ~~12~~	15 ~~12~~
November	4	6 ~~3~~	6 ~~5~~	10 ~~8~~	10 ~~8~~	10 or 15[1] ~~8~~
December	4	6 ~~3~~	6 ~~5~~	10 ~~8~~	10 ~~8~~	10 or 15[1] ~~8~~
January	4	6 ~~3~~	6 ~~5~~	10 ~~8~~	10 ~~8~~	10 or 15[1] ~~8~~
February	4	6 ~~3~~	6 ~~5~~	10 ~~8~~	15 ~~8~~	15 ~~8~~
March	4	6 ~~3~~	6 ~~5~~	20 ~~8~~	25 ~~8~~	30 ~~8~~
April	6	10 ~~3~~	15 ~~5~~	30 ~~8~~	35 ~~8~~	40 ~~8~~
May[2, 3]	6	20 ~~3~~	30 ~~5~~	50 ~~8~~	60 ~~8~~	70 ~~8~~
June	6	15 ~~3~~	20 ~~5~~	30 ~~12~~	35 ~~12~~	40 ~~12~~
July	4	6 ~~3~~	10 ~~5~~	15 ~~12~~	20 ~~25~~	20 ~~25~~
August	4	6 ~~3~~	6 ~~5~~	10 ~~12~~	15 ~~25~~	15 ~~25~~
September	4	6 ~~3~~	6 ~~5~~	10 ~~12~~	15 ~~20~~	15 ~~20~~

[1] Refer to Measure YB-AQR-1, Part 4, regarding adjustment of Minimum Streamflows below Milton Diversion Dam in November, December and January of Wet WYs.

[2] Refer to Measure YB-AQR1, Part 7, regarding Milton Diversion Dam spill cessation schedule.

[3] Refer to Measure YB-RR4 regarding Milton Diversion Dam recreation streamflow events.

Table 21a. (continued)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
WILSON CREEK – BELOW WILSON CREEK DIVERSION DAM (COMPLIANCE POINT: ACT OF SETTING OUTLET WORKS)[4]						
October	0.25 or NF[4, 5]	0.25 or NF[4, 5]	0.25 or NF[4, 5]	0.25 or NF[4, 5]	0.25 or NF[4, 5]	0.25 or NF[4, 5]
November	0.25 or NF[4, 5]	0.25 or NF[4, 5]	0.25 or NF[4, 5]	0.25 or NF[4, 5]	0.25 or NF[4, 5]	0.25 or NF[4, 5]
December	0.25 or NF[4, 5]	0.25 or NF[4, 5]	0.25 or NF[4, 5]	0.25 or NF[4, 5]	0.25 or NF[4, 5]	0.25 or NF[4, 5]
January	0.25 or NF[4, 5]	0.25 or NF[4, 5]	0.25 or NF[4, 5]	0.25 or NF[4, 5]	0.25 or NF[4, 5]	0.25 or NF[4, 5]
February	0.25 or NF[4, 5]	0.25 or NF[4, 5]	0.25 or NF[4, 5]	0.25 or NF[4, 5]	0.25 or NF[4, 5]	0.25 or NF[4, 5]
March	0.25 or NF[4, 5]	0.25 or NF[4, 5]	0.25 or NF[4, 5]	0.25 or NF[4, 5]	0.25 or NF[4, 5]	0.25 or NF[4, 5]
April	0.25 or NF[4, 5]	0.25 or NF[4, 5]	0.25 or NF[4, 5]	0.25 or NF[4, 5]	0.25 or NF[4, 5]	0.25 or NF[4, 5]
May	0.25 or NF[4, 5]	0.25 or NF[4, 5]	0.25 or NF[4, 5]	0.25 or NF[4, 5]	0.25 or NF[4, 5]	0.25 or NF[4, 5]
June	0.25 or NF[4, 5]	0.25 or NF[4, 5]	0.25 or NF[4, 5]	0.25 or NF[4, 5]	0.25 or NF[4, 5]	0.25 or NF[4, 5]
July	0.25 or NF[4, 5]	0.25 or NF[4, 5]	0.25 or NF[4, 5]	0.25 or NF[4, 5]	0.25 or NF[4, 5]	0.25 or NF[4, 5]
August	0.25 or NF[4, 5]	0.25 or NF[4, 5]	0.25 or NF[4, 5]	0.25 or NF[4, 5]	0.25 or NF[4, 5]	0.25 or NF[4, 5]
September	0.25 or NF[4, 5]	0.25 or NF[4, 5]	0.25 or NF[4, 5]	0.25 or NF[4, 5]	0.25 or NF[4, 5]	0.25 or NF[4, 5]
[4] Refer to YB-AQR1, Part 5, regarding setting of the Wilson Creek Diversion Dam outlet works as the act of compliance.						
[5] NF means natural flow. The Minimum Streamflow requirement below Wilson Creek Diversion Dam shall be 0.25 cfs or the natural flow at the dam, whichever is less.						
JACKSON CREEK – BELOW JACKSON DAM (COMPLIANCE POINT: USGS STREAMFLOW GAGE 11414700)						
October	0.5	0.5	0.75	0.75	1	2
November	0.5	0.5	0.75	0.75	0.75	0.75
December	0.5	0.5	0.75	0.75	0.75	0.75
January	0.5	0.5	0.75	0.75	0.75	0.75
February	0.5	0.5	0.75	0.75	0.75	0.75
March	0.5	0.5	0.75	0.75	0.75	0.75
April	0.5	0.5	0.75	0.75	0.75	0.75
May	0.5	0.5	0.75	0.75	0.75	0.75
June	0.5	0.5	1	1	2	3
July	0.5	0.5	0.75	0.75	1	2
August	0.5	0.5	0.75	0.75	1	2
September	0.5	0.5	0.75	0.75	1	2
CANYON CREEK – BELOW FRENCH DAM (COMPLIANCE POINT: USGS STREAMFLOW GAGE 11414410)						
October	5	5	6 ~~5~~	9 ~~5~~	9 ~~5~~	9 ~~5~~
November	5	5	6 ~~5~~	9 ~~5~~	9 ~~5~~	9 ~~5~~
December	5	5	6 ~~5~~	9 ~~5~~	9 ~~5~~	9 ~~5~~
January	5	5	6 ~~5~~	9 ~~5~~	9 ~~5~~	9 ~~5~~
February	5	5	6 ~~5~~	9 ~~5~~	14 ~~5~~	18 ~~5~~
March	5	5	6 ~~5~~	9 ~~5~~	14 ~~5~~	18 ~~5~~
April	5	5	6 ~~5~~	9 ~~5~~	14 ~~5~~	18 ~~5~~
May	5	5	6 ~~5~~	9 ~~5~~	14 ~~5~~	18 ~~5~~
June	5	5	6 ~~5~~	9 ~~5~~	14 ~~5~~	18 ~~5~~
July	5	5	6 ~~5~~	9 ~~5~~	14 ~~5~~	18 ~~5~~
August	5	5	6 ~~5~~	9 ~~5~~	14 ~~5~~	18 ~~5~~
September[6]	5	5	6 ~~5~~	9 ~~5~~	14 ~~5~~	18 ~~5~~
[6] Refer to Measure YB-RR3 regarding French Dam recreation streamflow event.						

Table 21a. (continued)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
CANYON CREEK – BELOW FAUCHERIE DAM (COMPLIANCE POINT: USGS STREAMFLOW GAGE 11414450)						
October	5	5	6 5	9 5	9 5	9 5
November	5	5	6 5	9 5	9 5	9 5
December	5	5	6 5	9 5	9 5	9 5
January	5	5	6 5	9 5	9 5	9 5
February	5	5	6 5	9 5	14 5	18 5
March	5	5	6 5	9 5	14 5	18 5
April	5	5	6 5	9 5	14 5	18 5
May	5	5	6 5	9 5	14 5	18 5
June	5	5	6 5	9 5	14 5	18 5
July	5	5	6 5	9 5	14 5	18 5
August	5	5	6 5	9 5	14 5	18 5
September	5	5	6 5	9 5	14 5	18 5
CANYON CREEK – BELOW SAWMILL DAM (COMPLIANCE POINT: USGS STREAMFLOW GAGE 11414470)						
October	5	5	6 5	9 5	14 5	18 5
November	5	5	6 5	9 5	14 5	18 5
December	5	5	6 5	9 5	14 5	18 5
January	5	5	6 5	9 5	14 5	18 5
February	5	5 6	6 5	9 5	14 5	18 5
March	5	5 6	6 5	9 5	14 5	18 5
April	5	5 10	6 5	9 5	14 5	18 5
May	5	5	6 5	9 5	14 5	18 5
June	5	5	6 5	9 5	14 5	18 5
July	5	5	6 5	9 5	14 5	18 5
August	5	5	6 5	9 5	14 5	18 5
September	5	5	6 5	9 5	14 5	18 5
CANYON CREEK – BELOW BOWMAN DAM						
There is no Minimum Streamflow release requirement from Bowman Dam.						
CANYON CREEK – BELOW BOWMAN DAM AND BOWMAN-SPAULDING CONDUIT DIVERSION DAM (COMPLIANCE POINT: USGS STREAMFLOW GAGE 11416500)						
October	4	6 3	10 4	10 5	10 5	15 5
November	4	6 3	10 4	10 5	10 5	15 5
December	4	6 3	10 4	10 5	10 5	15 5
January	4	6 3	10 4	10 5	10 5	15 or 20[7] 5
February	4	6 3	10 4	15 5	20 5	25 5
March	4	6 3	10 4	15 5	20 5	25 5
April	6	13 3	15 4	30 5	35 5	40 5
May[8, 9]	6	15 3	20 4	40 5	50 5	60 5
June	6	13 3	15 4	30 5	35 5	40 5
July	4	10 3	15 4	15 5	25 5	30 5
August	4	10 3	15 4	15 5	20 5	20 5
September	4	10 3	15 4	15 5	20 5	20 5

[7] Refer to Measure YB-AQR-1, Part 4, regarding adjustment of Minimum Streamflows requirement below the Bowman-Spaulding Diversion Dam in January of Wet WYs.

[8] Refer to Measure YB-AQR1, Part 7, regarding Bowman Dam spill cessation schedule.

[9] Refer to Measure YB-RR5 regarding Bowman-Spaulding Diversion Dam recreation streamflow event.

Table 21a. (continued)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
TEXAS CREEK – BELOW TEXAS CREEK DIVERSION DAM[10] (COMPLIANCE POINT: NEW STREAMFLOW GAGE TO BE CONSTRUCTED)						
October	0.6	1	1	2	3	3
November	0.6	1	1	2	3	3
December	0.6	1	1	2	3	3
January	0.6	1	1	2	3	3
February	0.6	1	1	2	3	3
March	0.6	1	1	2	3	3
April	0.6	1	1	2	3	3
May	0.6	1	1	2	3	3
June	0.6	1	1	2	3	3
July	0.6	1	1	2	3	3
August	0.6	1	1	2	3	3
September	0.6	1	1	2	3	3
[10] Refer to Measure YB-AQR1, Part 3, regarding Minimum Streamflows during Bowman-Spaulding Conduit outages.						
CLEAR CREEK – BELOW BOWMAN-SPAULDING DIVERSION CONDUIT[11] (COMPLIANCE POINT: NEW STREAMFLOW GAGE TO BE CONSTRUCTED)						
October	1	1	1	1	2	2
November	1	1	1	1	2	2
December	1	1	1	1	2	2
January	1	1	1	1	2	2
February	1	1	1	1	2	2
March	1	1	1	1	2	2
April	1	1	1	2	3	3
May	1	1	1	2	4	6
June	1	1	1	2	3	3
July	1	1	1	1	2	2
August	1	1	1	1	2	2
September	1	1	1	1	2	2
[11] Refer to Measure YB-AQR1, Part 3, regarding Minimum Streamflows during Bowman-Spaulding Conduit outages.						
TRAP CREEK – BELOW BOWMAN-SPAULDING DIVERSION CONDUIT[12] (COMPLIANCE POINT: NEW STREAMFLOW GAGE TO BE CONSTRUCTED)						
October	0.25	0.25	0.5	0.5	1	1.5
November	0.25	0.25	0.5	0.5	1	1.5
December	0.25	0.25	0.5	0.5	1	1.5
January	0.25	0.25	0.5	0.5	1	1.5
February	0.25	0.25	0.5	0.5	1	1.5
March	0.25	0.25	0.5	1	1.5	1.5
April	0.25	0.75	0.75	2	3	3
May	0.25	0.75	0.75	3	3	3
June	0.25	0.75	0.75	2	3	3
July	0.25	0.25	0.5	0.5	1	1.5
August	0.25	0.25	0.5	0.5	1	1.5
September	0.25	0.25	0.5	0.5	1	1.5
[12] Refer to Measure YB-AQR1, Part 3, regarding Minimum Streamflows during Bowman-Spaulding Conduit outages.						

Table 21a. (continued)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
RUCKER CREEK – BELOW BOWMAN-SPAULDING DIVERSION CONDUIT[13] (COMPLIANCE POINT: NEW STREAMFLOW GAGE TO BE CONSTRUCTED)						
October	0.3	0.3	0.5	2	2	2
November	0.3	0.3	0.5	2	2	2
December	0.3	0.3	0.5	2	2	2
January	0.3	0.3	0.5	2	2	2
February	0.3	0.3	0.5	2	2	2
March	0.3	0.3	0.5	2	2	2
April	0.3	0.3	0.5	2	2	2
May	0.3	0.3	0.5	2	3	3
June	0.3	0.3	0.5	2	2	2
July	0.3	0.3	0.5	2	2	2
August	0.3	0.3	0.5	2	2	2
September	0.3	0.3	0.5	2	2	2
[13] Refer to Measure YB-AQR1, Part 3, regarding Minimum Streamflows during Bowman-Spaulding Conduit outages.						
BEAR RIVER – BELOW DUTCH FLAT AFTERBAY DAM[14] (COMPLIANCE POINT: USGS STREAMFLOW GAGE 11421790)						
October	7	7 ~~5~~	8 ~~10~~	10	13 ~~5~~	13 ~~5~~
November	7	7 ~~5~~	8 ~~5~~	10 ~~5~~	13 ~~5~~	13 ~~5~~
December	7	7 ~~5~~	8 ~~5~~	10 ~~5~~	13 ~~5~~	13 ~~5~~
January	7	7 ~~5~~	8 ~~5~~	10 ~~5~~	13 ~~5~~	13 ~~5~~
February	10	10 ~~5~~	15 ~~5~~	20 ~~5~~	22 ~~5~~	30 ~~5~~
March	15	15 ~~5~~	20 ~~5~~	25 ~~5~~	30 ~~5~~	40 ~~5~~
April	20	20 ~~17~~	25 ~~17~~	30 ~~5~~	35 ~~5~~	45 ~~5~~
May	15	15 ~~17~~	20 ~~17~~	25 ~~17~~	30 ~~17~~	40 ~~17~~
June	10	10	15 ~~17~~	20 ~~17~~	22 ~~17~~	30 ~~17~~
July	10	10	10	10	12 ~~10~~	15 ~~10~~
August	10	10	10	10	12 ~~10~~	15 ~~10~~
September	10	10	10	10	12 ~~10~~	15 ~~10~~
[14] Refer to Measure YB-AQR1, Part 3, regarding Minimum Streamflows during Drum-Spaulding Project Drum Canal outages.						
BEAR RIVER - BELOW CHICAGO PARK POWERHOUSE[15]						
There is no Minimum Streamflow release requirement from Chicago Park Powerhouse. [15] Refer to Measure YB-AQR1, Part 6, regarding motoring of the Chicago Park Powerhouse.						
BEAR RIVER – BELOW ROLLINS DAM[16, 17] (COMPLIANCE POINT: USGS STREAMFLOW GAGE 11422500)						
October	20	40	40	55 ~~40~~	65 ~~75~~	65 ~~75~~
November	15	20 ~~15~~	23 ~~15~~	30 ~~15~~	40 ~~20~~	50 ~~20~~
December	15	20 ~~15~~	23 ~~15~~	30 ~~15~~	40 ~~20~~	50 ~~20~~
January	15	20 ~~15~~	23 ~~15~~	30 ~~15~~	40 ~~20~~	50 ~~20~~
February	15	20 ~~15~~	23 ~~15~~	30 ~~15~~	40 ~~20~~	50 ~~20~~
March	15	20 ~~15~~	25 ~~15~~	30 ~~15~~	40 ~~20~~	50 ~~20~~
April	15	40 ~~15~~	40 ~~15~~	50 ~~15~~	75 ~~20~~	75 ~~20~~
May	20	45 ~~40~~	45 ~~40~~	65 ~~40~~	100 ~~75~~	100 ~~75~~
June	20	50 ~~40~~	50 ~~40~~	65 ~~40~~	125 ~~75~~	125 ~~75~~
July	20	50 ~~40~~	50 ~~40~~	70 ~~40~~	109 ~~75~~	125 ~~75~~
August	20	50 ~~40~~	50 ~~40~~	70 ~~40~~	109 ~~75~~	125 ~~75~~
September	20	50 ~~40~~	50 ~~40~~	70 ~~40~~	80 ~~75~~	80 ~~75~~
[16] Refer to Measure YB-AQR1, Part 7, regarding Rollins Dam spill cessation schedule. [17] Refer to Measure YB-AQR1, Part 8, regarding Rollins Reservoir operations control.						

~~[1] To be clear, the Minimum Streamflow shall be measured in two ways: as a 15-minute flow (instantaneous flow) and as the 24-hour average flow (mean daily flow). The instantaneous flow is the flow value used to construct the mean daily flow, and is an instantaneous flow reading taken every 15 minutes. The mean daily flow is the average of instantaneous flow readings from midnight of one day to midnight of the next day.~~

[2] NID's proposed minimum flow release for Rollins Dam is the same as the minimum flow releases for this facility in Article 33 in the existing license with a slight adjustment for Licensee's proposed water year types. Article 33 includes two water year types and NID proposes five water year types.

Table 1b. Minimum Streamflows and Target Streamflows in cubic feet per second (cfs) for the Yuba-Bear Hydroelectric Project. The Target Streamflows and Minimum Streamflows shall apply to all Water Year types described in Part 2 of this measure.

Facility	Minimum Streamflow[2]	Target Streamflow
Jackson Creek - Below Jackson Lake Dam[1]	0.3	0.75
Texas Creek -Below Texas Creek Diversion Dam[3]	0.6	1.5
Fall Creek -Below Fall Creek Diversion Dam[3]	0.2	0.5
Rucker Creek - Below Rucker Creek Diversion Gate[3]	0.3	0.75

[1] During years where the reservoir is not at its full storage capacity on July 1, the Target and Minimum streamflows shall be adjusted by July 15 of each year according the following formula:

$$(0.80*[storage^{July1}]*0.504)/(153)$$

where: 0.80 is used to account for evaporation in the lake; 0.504 is the conversion from acre-feet to cfs; and 153 is the number of days from July 1-November 30. The Target and Minimum streamflows as adjusted on July 15shall remain in effect until June 30 of the following year.

[2] Compliance monitoring and reporting for Minimum Streamflows shall only apply for the period from July 1 through October 31. Gates on the dams shall be set to release the required minimum flow for the entire winter season on November 1 or at the time when access to the dam is no longer possible due to winter conditions, whichever is earlier.

[3] Target and Minimum streamflows at these locations are based on upstream minimum flow requirements contained in the Drum-Spaulding Project (FERC Project No. 2310) license. If the upstream requirements are modified, these Target and Minimum streamflows in Table 1b shall be modified in kind.

There are no Minimum streamflow requirements: 1) in Wilson Creek below Wilson Creek Diversion Dam; 2) and in Clear and Trap creeks below the Bowman-Spaulding Conduit, and 3) the Bear River below Chicago Park Powerhouse other than the upstream minimum streamflow releases from Dutch Flat Afterbay Dam, which would flow past the powerhouse.

Part 3. Bowman-Spaulding Diversion Conduit Outages and Drum-Spaulding Project's Drum Canal Outages

This part of the measure pertains to outages of the Project's Bowman-Spaulding Diversion Conduit and outages of the Drum-Spaulding Project's Drum Canal that affect Minimum Streamflows described in Part 2 of this measure. For the purpose of this part of the measure, there are three types of canal outages: 1) annual planned outages; 2) non-routine planned outages; and 3) emergency outages. For the purpose of this part: an "annual planned outage" is defined as an outage that is typically taken around the same time each year for routine maintenance; a "non-routine planned outage" is defined as an outage for work that is high priority work (often major maintenance) and performed under planned conditions but is not performed during the annual planned outage period; and an "emergency outage" is defined as an outage due to an event that is reasonably out of the control of Licensee and requires Licensee to take immediate action, either unilaterally or under instruction of law enforcement, emergency services, or other regulatory agency staff, including actions to prevent the imminent loss of human life or damage to property. An emergency may include, but is not limited to: natural events such as landslides, storms, or wildfires; vandalism; malfunction or failure of Project works; or other public safety incidents.

Bowman-Spaulding Conduit

During the annual meeting (Measure YB-GEN1) Licensee shall inform meeting participants about annual planned outages of the Bowman-Spaulding Conduit, including the anticipated time-frame that the annual planned outages will occur, and any non-routine planned outages that are already planned at the time of the annual meeting for the upcoming year. Annual planned outages of the Bowman-Spaulding Conduit are normally, but not always, taken for approximately a 2-week period sometime between mid-June and early July. Licensee shall in good faith provide Forest Service, BLM, CDFG and SWRCB as much notice as is reasonably possible for any annual planned outages or non-routine planned outages of the conduit that were not noted in the annual meeting or that become anticipated to occur at a time that is different than reported in the annual meeting. For all annual planned outages and non-routine planned outages, Licensee shall comply with the Canal Fish Rescue Plan (Measure YB-AQR4) as well as all applicable laws and permitting requirements. Licensee shall provide Forest Service, BLM, CDFG and SWRCB notice by electronic mail as soon as reasonably possible, but no later than the end of the next business day (business days do not include weekends and federal or state holidays) after an emergency outage occurs.

Table 3 of this measure provides the minimum streamflows required during the first 30 days of annual planned outages and non-routine planned outages of the Bowman-Spaulding Conduit. In an emergency outage of the Bowman-Spaulding Conduit, Licensee shall make a good faith effort to implement the minimum streamflows in Table 3 as soon as possible once the emergency occurs, and shall maintain the minimum streamflows for 30 days or until the emergency outage concludes. If an annual planned outage, non-routine planned outage, or emergency outage is anticipated to extend past 30 days, Licensee shall consult with the Forest Service, BLM, CDFG and SWRCB regarding minimum streamflows for the remainder of the outage after the first 30 days, and Licensee shall implement the collaboratively agreed upon minimum streamflows as soon as it is reasonably possible to do so for the remainder of the outage. Licensee shall also file any collaboratively agreed upon changes in minimum streamflows, as identified in Table 3, with the Commission.

Table 3. Minimum streamflow requirements during outages of the Bowman-Spaulding Diversion Conduit.

Stream – Facility	Minimum Streamflow during Annual Planned Outages, Non-Routine Planned Outages and Emergency Outages
Texas Creek – Below Texas Creek Diversion Dam	Flow in Texas Creek downstream of the Texas Creek Diversion Dam shall equal flow in Texas Creek upstream of the Texas Creek Diversion Dam. Licensee shall comply with this requirement by not diverting any water from Texas Creek into the Bowman-Spaulding Conduit during the outage (i.e., monitoring streamflow upstream in Texas Creek upstream of Texas Creek Diversion Dam during the outage shall not be required).
Clear Creek – Below Bowman-Spaulding Diversion Conduit	Flow in Clear Creek below the Bowman-Spaulding Conduit shall equal flow in Clear Creek upstream of the Bowman-Spaulding Conduit. Licensee shall comply with this requirement by not diverting any water from Clear Creek into the Bowman-Spaulding Conduit during the outage (i.e., monitoring of the streamflow in Clear Creek upstream of Bowman-Spaulding Conduit during the outage shall not be required).
Trap Creek – Below Bowman-Spaulding Diversion Conduit	Flow in Trap Creek below the Bowman-Spaulding Conduit shall equal flow in Trap Creek upstream of the Bowman-Spaulding Conduit. Licensee shall comply with this requirement by not diverting any water from Trap Creek into the Bowman-Spaulding Conduit during the outage (i.e., monitoring of the streamflow in Trap Creek upstream of Bowman-Spaulding Conduit during the outage shall not be required).

Table 3. (continued)

Stream – Facility	Minimum Streamflow during Annual Planned Outages, Non-Routine Planned Outages and Emergency Outages
Rucker Creek – Below Bowman-Spaulding Diversion Conduit	Flow in Rucker Creek below the Bowman-Spaulding Conduit shall equal flow in Rucker Creek upstream of the Bowman-Spaulding Conduit. Licensee shall comply with this requirement by not diverting any water from Rucker Creek into the Bowman-Spaulding Conduit during the outage (i.e., monitoring of the streamflow in Rucker Creek upstream of Bowman-Spaulding Conduit during the outage shall not be required).

Drum-Spaulding Project's Drum Canal
During outages of the Drum Spaulding Project's Drum Canal, which is upstream of Dutch Flat Afterbay Dam, Licensee shall adhere to the Minimum Streamflow below Dutch Flat Afterbay Dam shown in Table 3 of Part 2 of this measure until Dutch Flat Afterbay reaches an elevation of 2,700 feet, after which the minimum streamflow below Dutch Flat Afterbay Dam during the Drum Canal outage shall be outflow equals inflow.

Part 4. Milton Diversion Dam and Bowman-Spaulding Diversion Dam Overwintering Minimum Streamflow Adjustments

This part pertains to adjustments in the Minimum Streamflows described in Part 2 of this measure at Milton Diversion Dam in November, December and January of Wet Water Years and at Bowman-Spaulding Diversion Dam in January of Wet Water Years.

Milton Diversion Dam
In November, December and January of Wet water years, the Minimum Streamflow in the Middle Yuba River downstream of Milton Diversion Dam shall be 15 cfs unless the precipitation as measured at Licensee's weather station at Bowman Lake from the previous July 1 up to but not including the first day of the month is equal to or less than 75 percent of the annual average precipitation for the same period for the most recent 30 years. In that case, the Minimum Streamflow shall be 10 cfs.

Bowman-Spaulding Diversion Dam
In January of Wet water years, the Minimum Streamflow in the Canyon Creek downstream of Bowman-Spaulding Diversion Dam shall be 20 cfs unless the precipitation as measured at Licensee's weather station at Bowman Lake from the previous July 1 up to but not including the first day of the month is equal to or less than 75 percent of the annual average precipitation for the same period for the most recent 30 years. In that case, the Minimum Streamflow shall be 15 cfs.

Part 5. Wilson Creek Diversion Dam Flow Setting

This part pertains to compliance with the Minimum Streamflows described in Part 2 of this measure at Wilson Creek Diversion Dam.

Non-Winter Period
Licensee shall, within 90 days of license issuance and except for the "Winter Period" described below, check the outlet works at the Wilson Creek Diversion Dam once each week (i.e., from Sunday to Saturday) and, if needed, re-set the outlet works to make the Minimum Streamflow release for the Wilson Creek Diversion Dam set forth in Table 1 of this measure. During this time period, Licensee's compliance requirement is the act of setting the outlet works once each week consistent with the Minimum Streamflows for that month as set forth in Table 2 of this measure; that is, as long as Licensee has set the outlet works once each week, Licensee shall be deemed to be in compliance with the Wilson Creek Diversion Dam Minimum Streamflow requirements of this measure.

Winter Period
The Winter Period is defined as the period from no later than November 1 of each year until the following year when Licensee is able to safely access the Wilson Creek Diversion Dam. Within 90 days of license issuance, during each Winter Period Licensee shall by no later than November 1 set the outlet works at Wilson Creek Diversion Dam to make the Minimum Streamflow release for the Wilson Creek Diversion Dam set forth in Table 2 of this measure. Licensee shall not be required to re-set the outlet works until the end of the Winter Period, at which time Licensee shall set the outlet works for the flow release for that month as set forth in Table 1 of this measure. During the Winter Period, Licensee's license compliance requirement is the act of setting the outlet works no later than November 1; that is, as long as Licensee has set the outlet works, Licensee shall be deemed to be in compliance with the Wilson Creek Diversion Dam Minimum Streamflow requirements of this measure for the Winter Period.

Part 6. Chicago Park Powerhouse Motoring

Licensee shall, from May 1 through September 15 of each year, make a good faith effort to avoid non-routine planned outages and operate the turbine/generator unit in Chicago Park Powerhouse in a synchronous condense mode when the unit is not generating electricity (i.e., "motor" the unit). If from May 1 through September 15 Licensee shuts down the Chicago Park Powerhouse for a non-routine planned outage which would cause the Dutch Flat Afterbay to spill, Licensee shall make a good faith effort to motor the powerhouse until the flows from the Dutch Flat Afterbay, consistent with Part 7 of this measure (i.e., regarding spill cessation at Dutch Flat Afterbay Dam), reach the tailrace of the Chicago Park Powerhouse.

Part 7. Milton Diversion Dam, Bowman-Spaulding Diversion Dam and Dutch Flat Afterbay Dam Spill Cessation Schedules and Minimization of Flow Fluctuations

This part pertains to spill cessation and operations at Milton Diversion Dam, Bowman-Spaulding Diversion Dam and Dutch Flat Afterbay Dam.

Licensee shall make a good faith effort to provide the target flows, measured as mean daily flow, within 10 percent of the target flows shown in Tables 4, 5, 6, 7 and 8 of this measure. However, it is recognized that some conditions (e.g., storm conditions) may result in flows outside

Licensee's ability to control. The target flows are targets only, and as long as Licensee shall make a good faith effort to meet the target flows, failure to meet the target flows shall not be considered a violation of this part of the measure. The requirements in this part are not subject to a ramping rate. Licensee shall make available to SWRCB, CDFG, Forest Service, and BLM the streamflow records related to the spill cessation schedules upon request.

In years where a spill cessation schedule is implemented, for the period of time from the end of the spill cessation schedule in Tables 4, 5 and 6 through September 30, with the exception of emergencies or when otherwise required by law or directed by regulatory agencies, Licensee shall make a good faith effort to not make releases from Milton Diversion Dam and Bowman-Spaulding Diversion Dam that result in short-term, high-flow fluctuations defined as a 100 percent or greater increase in a 12-hour period in the river downstream of the dam. In non-spill cessation years, Licensee shall make a good faith effort to not make releases from Milton Diversion Dam and Bowman-Spaulding Diversion Dam that result in short-term, high flow fluctuations as defined above in the river downstream of the dam from May 1 through September 30.

This measure does not apply in instances when Licensee is directed by the Commission or California Division of Safety of Dams to test (i.e., exercise) valves at Milton Diversion and Bowman-Spaulding Diversion dams (i.e., quickly open and close the valve). NID will make a good faith effort to schedule such inspections or outlet testing after September of each calendar year to avoid negative effects on aquatic species.

The dam spill cessation schedule requirements in this part are subject to temporary modification if required by equipment malfunction, as directed by law enforcement authorities, or in emergencies. An emergency is defined as an outage due to an event that is reasonably out of the control of Licensee and requires Licensee to take immediate action, either unilaterally or under instruction of law enforcement, emergency services, or other regulatory agency staff, including actions to prevent the imminent loss of human life or damage to property. An emergency may include, but is not limited to: natural events such as landslides, storms, or wildfires; vandalism; malfunction or failure of Project works; or other public safety incidents. If Licensee temporarily modifies the requirements of this condition, Licensee shall make all reasonable efforts to promptly resume performance of the requirements and shall notify BLM, Forest Service, SWRCB, and CDFG within 48 hours of the modification.

Licensee shall commence the dam spill cessation schedules in this part within 90 days of license issuance unless a facility modification or construction is required. Where a facility must be modified or constructed to allow compliance with the required spill cessation schedule, including flow measurement facilities, except as otherwise provided, Licensee shall submit applications for permits to modify or construct the facilities as soon as reasonably practicable but no later than 2 years after license issuance and will complete the work as soon as reasonably practicable but no later than 2 years after receiving all required permits and approvals for the work. During the period before facility modifications or construction are completed, and starting within 90 days after license issuance, Licensee shall make a good faith effort to provide the specified spill cessation schedules within the reasonable capabilities of the existing facilities.

Milton Diversion Dam

Licensee shall adhere to the Milton Diversion Dam spill cessation schedule described in Table 4 of this measure after May 1 of each calendar year, or as soon as Licensee closes the Jackson Meadows Dam spill gates, whichever comes later. The first five days of this schedule (at 300 cfs) also provide flows for recreational whitewater boating (Refer to Measure YB-RR5, Bowman-Spaulding Diversion Dam Supplemental Flows for Whitewater Boating).

Table 4. Spill cessation schedule in the Middle Yuba River downstream of Milton Diversion Dam after May 1. If the peak of the spill is greater or equal to the highest flow on the spill cessation schedule, then the spill flows will be decreased according to this schedule. If the peak of spill flow is less than the highest flow on the schedule, then the spill flows will be decreased according to the schedule from the observed flow downward. While the table shows the spill cessation schedule continuing until Target Flows are 50 cfs, each spill cessation event will stop when the Target Flow shown in the table is equal to or less than the applicable Minimum Streamflow shown in Part 2 of this measure; that is, the spill cessation event will end at the applicable Minimum Streamflow.

Number of Days to Hold Target Flow	Target Mean Daily Flow in cfs at USGS Streamflow Gage Station 11408550
6 Days	300 cfs
3 Days	225 cfs
3 Days	150 cfs
3 Days	100 cfs
3 Days	80 cfs
2 Days	60 cfs
2 Days	50 cfs

Bowman-Spaulding Diversion Dam

Licensee shall adhere to the Bowman-Spaulding Diversion Dam spill cessation schedule described in Table 5 of this measure after April 1 of each calendar year.

Table 5. Spill cessation schedule in the Canyon Creek downstream of the Bowman-Spaulding Diversion Dam after April 1. If the peak of the spill is greater or equal to the highest flow on the spill cessation schedule, then the spill flows will be decreased according to this schedule. If the peak of spill flow is less than the highest flow on the schedule, then the spill flows will be decreased according to the schedule from the observed flow downward. While the table shows the spill cessation schedule continuing until Target Flows are 45 cfs, each spill cessation event will stop when the Target Flow shown in the table is equal to or less than the applicable Minimum Streamflow shown in Part 2 of this measure; that is, the spill cessation event will end at the applicable Minimum Streamflow.

Target Number of Days to Hold Target Flow	Target Mean Daily Flow in cfs at USGS Streamflow Gage Station 11416500
1 day	275 cfs
1 day	230 cfs
1 day	200 cfs
2 days	160 cfs
2 days	130 cfs
2 days	100 cfs
2 days	85 cfs
3 days	70 cfs
3 days	55 cfs
4 days	45 cfs

Dutch Flat Afterbay Dam

License shall adhere to the Dutch Flat Afterbay Dam spill cessation schedules described in Table 6 (for spills of 3 days or less) and Table 7 (for spills of more than 3 days) between May 1 and September 30 when the Chicago Park Flume and/or Powerhouse are out of service due to either planned or unplanned/emergency outage or Licensee has restricted the capacity of the Chicago Park Flume such that it results in spilling of the Dutch Flat Afterbay. During a Chicago Park Flume and/or Powerhouse outage that results in spilling of the Dutch Flat Afterbay, Licensee shall establish a draft of between 50 and 100 cfs from the Dutch Flat Afterbay Dam low-level outlet as high as possible depending on available water to maintain the Dutch Flat Afterbay level at or above 2,732 feet elevation, below which cavitation could cause unit reliability issues with Dutch Flat No. 2 Powerhouse. The spill cessation schedules in Table 6 and Table 7 shall begin when the Chicago Park Flume and/or Powerhouse is brought back on-line and the Dutch Flat Afterbay ceases spilling, as observed at the ogee-crest spillway at Dutch Flat Afterbay, and shall continue until the Minimum Streamflow Flow for that Water Year Type and month as shown in Table 2 of this measure is reached.

Table 6. Spill cessation schedule in the Bear River downstream of Dutch Flat Afterbay Dam for spills at Dutch Flat Afterbay lasting 3 days or less. If the peak of the licensee-caused spill is greater or equal to the highest flow on the spill cessation schedule, then the spill flows will be decreased according to this schedule. If the peak of spill flow is less than the highest flow on the schedule, then the spill flows will be decreased according to the schedule from the observed flow downward. While the table shows the spill cessation schedule continuing until Target Flows are 25 cfs, each spill cessation event will stop when the Target Flow shown in the table is equal to or less than the applicable Minimum Streamflow shown in Part 2 of this measure; that is, the spill cessation event will end at the applicable Minimum Streamflow.

Target Number of Days to Hold Target Flow	Target Mean Daily Flow in cfs at USGS Streamflow Gage Station 11421770
1 day	75 cfs
1 day	50 cfs
1 day	25 cfs

Table 7. Spill cessation schedule in the Bear River downstream of Dutch Flat Afterbay Dam for Licensee-caused spills at Dutch Flat Afterbay lasting longer than 3 days. If the peak of the Licensee-caused spill is greater or equal to the highest flow on the spill cessation schedule, then the spill flows will be decreased according to this schedule. If the peak of the Licensee-caused spill is less than the highest flow on the schedule, then the spill flows will be decreased according to the schedule from the observed flow downward. While the table shows the Licensee-caused spill cessation schedule continuing until Target Flows are 25 cfs, each spill cessation event will stop when the Target Flow shown in the table is equal to or less than the applicable Minimum Streamflow shown in Part 2 of this measure; that is, the spill cessation event will end at the applicable Minimum Streamflow.

Target Number of Days to Hold Target Flow	Target Mean Daily Flow in cfs at USGS Streamflow Gage Station 11421770
7 days	75 cfs
7 days	50 cfs
7 days	25 cfs

Part 8. Rollins Reservoir Elevation Control

Licensee shall make a good faith effort to manage the flows in the Bear River below Rollins Dam in a manner so as to match outflows with inflows when Rollins Reservoir elevation is within the top 2 to 3 feet (2,168.00 feet to 2,171.00 feet) of the reservoir. The goal of this measure is to eliminate rapid fluctuations in the Bear River below Rollins Dam. To the extent possible, Licensee shall manage the reservoir elevation within the top 2 to 3 feet of the reservoir by adjusting the draft out of reservoir into the Bear River based on inflows to Rollins Reservoir that are above downstream water supply demand. The adjustments shall be done over a period of time so as to have the draft at maximum when Rollins Dam begins spilling. After May 1 of each calendar year, when Rollins Reservoir inflows begin to subside and Rollins Dam stops spilling, Licensee shall manage the reduction in draft in a manner so as to keep Rollins Reservoir in the top 2 to 3 foot band while also managing flow releases below Rollins Dam so that the stage (water depth) does not decrease more than 1 foot total during any 3-week period (measured at USGS gage 11422500).

The requirements of this measure are subject to temporary modification if required by equipment malfunction, as directed by law enforcement authorities, or in emergencies. An emergency is defined as an event that is reasonably out of the control of Licensee and requires Licensee to take immediate action, either unilaterally or under instruction of law enforcement, emergency services, or other regulatory agency staff, including actions to prevent the imminent loss of human life or damage to property. An emergency may include, but is not limited to: natural events such as landslides, storms, or wildfires; vandalism; malfunction or failure of Project works; or other public safety incidents.

YB-AQR2 Bowman Lake Fish Stocking

Licensee shall, beginning the first full calendar year after license issuance, each year and upon the written request of CDFG and within 60 days following the submission by CDFG to Licensee of a statement of costs subject to audit by Licensee, pay for the stocking of up to 20,000 trout fry and 25,000 kokanee fry in that fiscal year (July 1 through June 30) by CDFG in Bowman Lake. The cost to Licensee of such trout and kokanee fry stocking in Bowman Lake shall not exceed the then-prevailing statewide average cost to CDFG, without mark-up, for the production and stocking of trout fry and kokanee fry in similar reservoirs. CDFG at its sole discretion may change the number, species and size of fish stocked in Bowman Lake in any one year, but Licensee shall only be responsible to reimburse CDFG for the costs that would have been incurred if CDFG stocked trout and kokanee fry at the levels described above.

YB-AQR3 Rollins Reservoir Fish Stocking

Licensee shall, beginning the first full calendar year after license issuance, each year and upon the written request of CDFG and within 60 days following the submission by CDFG to Licensee of a statement of costs subject to audit by Licensee, pay for the stocking of up to 10,000 catchable rainbow trout, 10,000 catchable brown trout, and 25,000 kokanee fry in that fiscal year (July 1 through June 30) by CDFG in Rollins Reservoir. The cost to Licensee for such trout and

kokanee fry stocking in Rollins Reservoir shall not exceed the then-prevailing statewide average cost to CDFG without mark-up for the production and stocking of trout and kokanee fry in similar reservoirs. CDFG at its sole discretion may change the number, species and size of fish stocked in Rollins Reservoir in any one year, but Licensee shall only be responsible to reimburse CDFG for the costs that would have been incurred if CDFG stocked trout and kokanee fry at the levels described above.

YB-AQR4 Steephollow Creek Foothill Yellow-Legged Frog Monitoring

Licensee shall, beginning in the first full calendar year after license issuance, monitor foothill-yellow-legged frogs (FYLF) in Steephollow Creek from the confluence with the Bear River for a distance of 1,000 meters upstream. The purpose of the monitoring is to assess if spills from the Chicago Park Conduit result in adverse effects on the FYLF population in Steephollow Creek and, if necessary, to facilitate the development of mitigation measures. Baseline monitoring shall occur in the first full calendar year following license issuance and be repeated in the second and third full calendar years following license issuance.

Event-based monitoring shall occur beginning the second full calendar year after a spill event, and will be repeated in the third year following that spill event. When the results of the two years of monitoring are known, Licensee shall consult with BLM, CDFG and SWRCB as to the need for a third year of monitoring. A Chicago Park Conduit spill event that requires monitoring is defined as:

- A spill of more than 100 cfs between April 1 and June 15; or
- A spill of more than 300 cfs between June 16 and September 15

Licensee shall notify BLM, CDFG and SWRCB within two business days of any spill event occurring between April 1 and September 15. Spill events between September 16 and March 31 do not qualify as spill events that require monitoring.

FYLF monitoring shall occur for 1,000 meters of Steephollow creek (i.e., beginning at the confluence with the Bear River) and will consist of a tally of each FYLF life stage detection, recording locations of egg masses with a hand held global positioning system (GPS) device, and photo-documenting Baseline monitoring and event based monitoring will be comprised of four surveys: the first two in spring (typically May) focusing on adults and egg masses, the third at least one month later focusing on tadpoles, and the fourth in late summer/fall focusing on metamorphosed juveniles. Licensee's methods shall follow the methods for visual encounter surveys and data analysis described in Licensee's relicensing 2011 Special-Status Amphibians – Foothill Yellow-Legged Frog Surveys Technical Memorandum (Appendix E12 in Exhibit E of Licensee's April 2011 Final License Application), except that collection of habitat data for FYLF detections will not be necessary.

In years in which monitoring occurs, Licensee shall prepare a report summarizing the monitoring. The report shall include the results of the monitoring, including a description of the spill event (i.e., flow, duration and reason for spill event) if the monitoring was triggered by a

spill event, and shall compare the conditions in the creek to those conditions in the creek documented by past monitoring. The report shall include any Licensee recommendations to mitigate observed adverse effects. The report shall be provided to BLM, CDFG and SWRCB by December 31 and shall be discussed at the annual consultation meeting (Measure YB-GEN1).

YB-AQR5 Implement Canal Fish Rescue Plan

Licensee shall, within 1 year of license issuance, implement the Canal Fish Rescue Plan included in Licensee's application for new license as approved by the Commission.

YB-AQR6 Milton-Bowman Conduit Fish Entrainment

Licensee shall, beginning the first full calendar year after license issuance, monitor fish entrainment into the Milton-Bowman Conduit from April 15 through August 15 by placing a net or nets into the conduit. Sampling shall occur each week for a 96-hour continuous period, to begin on a randomly selected day each week. Sampling each week may be reduced to a 48-hour continuous period, to be randomly selected, if five of fewer fish were collected in the previous week. All collected fish will be identified to species, and the length, weight and condition of each collected fish will be recorded. The time of day (e.g., day or night) and flow in the conduit when the fish were collected will also be recorded. Any live fish collected in the nets will be placed in the Middle Yuba River immediately downstream of the Milton Diversion Dam.

Given the highly variable snow conditions that occur in the vicinity of Milton Diversion Dam (elevation 5,600 ft), including the potential for ongoing snow storms during April and May, there may be weather-related safety and sampling issues that could preclude an April 15 start date. Licensee shall be prepared to begin sampling with snow on the ground and will make a good faith effort to begin on April 15, but the amount of snowpack and storms could limit an actual start date to sometime after April 15.

By December 31 following the fieldwork, Licensee shall prepare a report on the study including objectives, methods, results (data are to be reported day/night sampling and an estimate of total number of fish entrained by species based on a volumetric analysis shall be included in the report), Licensee's recommended resource measures including the design of a fish screen if Licensee proposes to install a fish screen, and a schedule of implementation for any License proposed measures, and shall provide a draft of the final report to the Forest Service, CDFG and SWRCB for review and approval. Licensee shall file the report, including evidence of consultation and the reason why any agency proposed measures were not adopted, with the Commission and shall implement those measures required by the Commission.

YB-AQR7 Rollins Dam Large Woody Material Management

Licensee shall, in October of each year, relocate the large woody material that has accumulated on the upstream side of Rollins Dam spillway log boom to the downstream side of the log boom. Licensee shall allow the large woody material between the log boom and spillway to pass over the spillway when the reservoir spills. This measure does not require that Licensee gather large

woody material and deposit it near the log boom, or modify Rollins Reservoir operations to facilitate the passage of large woody material over the spillway.

YB-AQR8 Fall Creek Diversion Dam Minimum Streamflows

This measure applies to Minimum Streamflows in Fall Creek downstream of Fall Creek Diversion Dam. Water Year Types, Minimum Streamflows, including provisions for temporary modifications to Minimum Streamflows, and canal outages in this measure shall have the same meaning as "Water Year Types," "Minimum Streamflows" and canal outages as set forth in Parts 1, 2 and 3, respectively, of Measure YB-AQR1, *Streamflows*.

Except as otherwise provided, Licensee shall implement Minimum Streamflows shown in Table 1 of the measure within 90 days of license issuance unless a facility modification or construction is necessary. Where a facility must be modified or constructed to allow compliance with the required Minimum Streamflows, including flow measurement facilities, except as otherwise provided, Licensee shall submit applications for permits to modify or construct the facility as soon as reasonably practicable but no later than 2 years after license issuance and will complete the work as soon as reasonably practicable but no later than 2 years after receiving all required permits and approvals for the work. During the period before facility modifications or construction are completed, and starting within 90 days after license issuance, Licensee shall make a good faith effort to provide the specified Minimum Streamflows within the reasonable capabilities of the existing facilities.

Table 1. Minimum Streamflows in cubic feet per second (cfs) for the Fall Creek Diversion Dam by month and Water Year Type.

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
FALL CREEK – BELOW FALL CREEK DIVERSION DAM (COMPLIANCE POINT: NEW STREAMFLOW GAGE TO BE CONSTRUCTED)						
October	1	1	2	3	4 or In = Out[1]	4 or In = Out[1]
November	1	1	2	3	4 or In = Out[1]	4 or In = Out[1]
December	1	1	2	3	4 or In = Out[1]	4 or In = Out[1]
January	1	1	2	3	4 or In = Out[1]	4 or In = Out[1]
February	1	1	2	3	4	4
March	1	1	2	3	4	4
April	1	1	2	3	4	4
May	12.5 or In = Out[1]	12.5 or In = Out[1]	15 or In = Out[1]	20 or In = Out[1]	20 or In = Out[1]	20 or In = Out[1]
June	5 or In = Out[1]	5 or In = Out[1]	6 or In = Out[1]	7 or In = Out[1]	8 or In = Out[1]	9 or In = Out[1]
July	1	1	2	3	4	4
August	1	1	2	3	4	4
September	1	1	2	3	4	4

[1] In=Out means inflow to the Fall Creek Diversion Dam pool equals outflow from the Fall Creek Diversion Dam. The Minimum Streamflow requirement shall be the specified flow or inflow to the Fall Creek Diversion Dam pool, whichever is less. If the minimum instream flow required is greater than the inflow to the Fall Creek Diversion Dam pool, Licensee shall not divert any of the inflow.

During outages of the Bowman-Spaulding Conduit that affect Minimum Streamflows in Fall Creek as described in Table 1 of this measure, flow in Fall Creek downstream of the Fall Creek Diversion Dam shall equal flow in Fall Creek upstream of the Fall Creek Diversion Dam. Licensee shall comply with this requirement by not diverting any water from Fall Creek into the

Bowman-Spaulding Conduit during the outage (i.e., monitoring streamflow upstream in Fall Creek upstream of Fall Creek during the outage shall not be required).

YB-AQR9 Minimum Streamflows Compliance Measurement

For the purpose of documenting compliance with the Minimum Streamflow requirements in Measure YB-AQR1, *Streamflows*, and Measure YB-AQR8, *Fall Creek Diversion Dam Minimum Streamflows*, Licensee shall measure streamflows at the locations listed in Table 1 of this measure. Compliance flow data collected by Licensee from the streamflow gages shall be reviewed by Licensee's hydrographers as part of its quality assurance/quality control (QA/QC) protocol. Upon completion of the QA/QC process, for active USGS gages, Licensee shall catalogue the data and make them available to USGS in annual hydrology summary reports. Licensee understands that USGS will then perform an independent QA/QC review of the data and subsequently publish the data and post it within USGS's electronic database that can be accessed via Internet and hard copy formats. Licensee shall make Licensee-recorded instantaneous flow data available to the Forest Service, BLM, SWRCB and CDFG upon request.

Table 1. Minimum Streamflow compliance monitoring locations for the Yuba-Bear Hydroelectric Project.

Location	USGS Gage No.	Licensee Gage No.	Gage Name	Location (Latitude and Longitude)		Elevation (ft)
Middle Yuba River – Below Jackson Meadows Dam	11407815	YB-301	Middle Yuba River Controlled Release at Jackson Meadows Dam, Near Sierra City, CA	39°30'36"	120°33'15"	5,800
Middle Yuba River – Below Milton Diversion Dam	11408550	YB-304	Middle Yuba River Below Milton Dam, Near Sierra City, CA	39°31'19"	120°34'57"	5,690
Jackson Creek – Below Jackson Dam	11414700	YB-312	Jackson Creek Below Jackson Lake, Near Sierra City, CA	39°27'53"	120°33'46"	6,570
Canyon Creek – Below French Dam	11414410	YB-306	Canyon Creek Below French Lake, Near Cisco, CA	39°25'16"	120°32'30"	6,590
Canyon Creek – Below Faucherie Dam	11414450	YB-308	Canyon Creek Below Faucherie Lake, Near Cisco, CA	39°25'46"	120°34'06"	6,080
Canyon Creek – Below Sawmill Dam	11414470	YB-310	Canyon Creek Below Sawmill Lake, Near Graniteville, CA	39°26'44"	120°36'05"	5,790
Canyon Creek – Below Bowman-Spaulding Diversion Dam	11416500	YB-315	Canyon Creek Below Bowman Lake, CA	39°26'23"	120°39'37"	5,300
Texas Creek – Below Texas Creek Diversion Dam	--	Proposed YB-317	--	39°21'20"[1]	120°39'52"[1]	5,400[1]
Clear Creek – Below Bowman-Spaulding Diversion Conduit	--	Proposed YB-318	--	39°22'51"[1]	120°40'52"[1]	5,350[1]
Fall Creek – Below Fall Creek Diversion Dam	--	Proposed YB-319	--	39°22'51"[1]	120°40'52"[1]	5,350[1]
Trap Creek – Below Bowman-Spaulding Diversion Conduit	--	Proposed YB-320	--	39°21'57"[1]	120°40'48"[1]	5,350[1]
Rucker Creek – Below Rucker Creek Diversion Gate	--	Proposed YB-321	--	39°24'17"[1]	120°40'32"[1]	5,300[1]
Bear River – Below Dutch Flat Afterbay Dam	11421790	YB-197	Bear River Below Dutch Flat Afterbay Near Dutch Flat, CA	39°12'49"	120°50'39"	2,600

Table 1. (continued)

Location	USGS Gage No.	Licensee Gage No.	Gage Name	Location (Latitude and Longitude)		Elevation (ft)
Bear River – Below Rollins Dam	11422500	YB-196	Bear River Below Rollins Dam Near Cisco, CA	39°08'3"	120°57'11"	1,975

[1] This is an estimate of where the proposed gage will be located.

All of the above gages are existing streamflow gages, with the exception of the proposed gages YB-317, YB-318, YB-319, YB-320 and YB-321, which Licensee shall install and maintain for the purpose of monitoring compliance with Minimum Streamflows. In addition, USGS gages 11414410, 1414450 and 11414470 rated to measure up to 2.6 cfs, and Licensee shall improve those gages to monitor compliance with Licensee's proposed Minimum Streamflows in Measure YB-AQR1.

Licensee shall, within 90 days of license issuance, commence monitoring at the gages listed in Table 1 of this measure, with the exception of gages USGS gages 11414410, 1414450 and 11414470 and proposed gages YB-317, YB-318, YB-319, YB-320 and YB-321. For these eight gages, within 1 year after license issuance, Licensee shall submit applications to the appropriate agencies for permits to construct or upgrade and rate each of these gages. Licensee shall complete such construction and rating as soon as reasonably practicable but no later than 2 years after receipt of all required permits and approvals for the gages. Within 90 days of the time that gage construction and rating is complete, Licensee shall commence monitoring at the gage to document compliance with Minimum Streamflows. During the period from 90 days after the license issuance until such time as monitoring begins at the gage, Licensee shall make a good faith effort to monitor flow for compliance purposes.

2.5 Terrestrial Resources

YB-TR1 Implement Non-Native Invasive Plant~~Species~~ Management Plan ~~on Federal Land~~[8]

Licensee shall, within 1 year of license issuance, implement the Non-Native Invasive Plant~~Species~~ Management Plan included in Licensee's application for new license as approved by the Commission.

YB-TR2 Implement Vegetation Management Plan on Federal Land[9]

Licensee shall, within 1 year of license issuance, implement the Vegetation Management Plan included in Licensee's application for new license as approved by the Commission.

[8] NID's Amended *Non-Native Invasive Plant Management Plan* is included in Amended Appendix E4 of the Amended Application. The plan, which was called the *Invasive Species Management Plan on Federal Land*, was included in the FLA and has been amended for inclusion in the Amended Appendix E4.

[9] NID's Amended *Vegetation Management Plan* is included in Amended Appendix E4 of the Amended Application. The plan was included in the FLA and has been amended for inclusion in the Amended Appendix E4.

YB-TR3 Bowman-Spaulding Transmission Line Avian Protection

Licensee shall, beginning in the first full calendar year after license issuance, record annually all incidental observations by Licensee's operations staff of bird collisions/electrocutions at the Bowman-Spaulding Transmission Line. The reported incidental observations shall include the following information: 1) date of observation; 2) location of observation (i.e., nearest pole number); 3) species, if identifiable; 4) number of birds; 5) condition of bird(s) (i.e., dead or injured); 6) suspected cause of injury or death (i.e., electrocution or collision); and 7) was the bird banded and, if so, band number. Licensee shall provide this information for each year to the Forest Service, USFWS and CDFG at least 60 days prior to the annual meeting (Measure YB-GEN1).

Licensee shall consult with the Forest Service, USFWS and CDFG concerning measures needed to ensure the protection of birds where incidental observations of bird collisions/electrocutions illustrate a problem pole or transmission structure. Measures may include retrofit or replacement of problem poles or transmission structure in accordance with the guidelines presented in *Avian Protection Plan (APP) Guidelines* (APLIC and USFWS 2005) which are intended to be used in conjunction with *APLIC's Suggested Practices for Raptor Protection on Power Lines: State of the Art in 1996* and *Mitigating Bird Collisions with Power Lines: The state of the Art in 1996*, or the most current edition of these documents. Additionally, when replacement of existing non-problematic poles or transmission structures is deemed necessary by Licensee (i.e., the pole or transmission structure has reached the end of its useful life), Licensee shall replace the poles or structures in conformance to the documents cited above.

YB-TR4 Consult When Replacing Canal Wildlife Escape Facilities and Wildlife Crossing Facilities

Prior to replacing or retrofitting existing wildlife escape facilities and wildlife crossings along Project canals~~on NFS land or public land administered by BLM~~, Licensee shall consult with CDFG regarding specifications and design and with the Forest Service or BLM, as appropriate~~, and CDFG regarding specifications and design~~. Licensee shall file the design, including evidence of consultation, with the Commission within 60 days after the wildlife escape facility or wildlife crossing ~~or~~ facility has been replaced or retrofitted. Licensee shall also assess existing wildlife escape facilities and wildlife crossing facilities annually to ensure they are functional and in proper working order. Inspections shall occur at the same time other types of maintenance activities or canal assessments are being conducted.

YB-TR5 Monitor Animal Losses in Project Canals

Beginning in the first full calendar year after license issuance, Licensee shall record animal losses in all Project canals. Specifically, Licensee's operators, who conduct daily operations on Project canals, shall record in log books all dead animals observed on canal trash racks and otherwise in the canal using the Wildlife Mortality data sheets found in Appendix 4-2A of the Wildlife Movement Technical Memorandum (4-2) included in Appendix E12 of Licensees application for new license. Licensee shall make a good faith effort to record the location of the

dead animal (i.e. which Project canal and where in the canal the dead animal was found and associated structure), species, date and time of the observation, suspected cause of death if it can be determined from visual observation only, photograph if available, estimated size, estimated age, and sex if known, and other pertinent information. The information will include the cumulative years and preceding year's mortality by canal segment, and a map showing segments (defined by location of trash racks). Licensee shall provide this information to CDFG, ~~and to the~~ Forest Service, ~~if the canal is located on or crosses NFS land or to~~ and BLM, as appropriate, if the canal is on public land administered by BLM, and to the Commission at least 60 days prior to the annual consultation meeting described in Measure YB-GEN-1.

If there is an increasing trend in wildlife mortalities in a canal, additional measures to address suspected Project-related causes for that canal may ~~shall~~ be developed by Licensee in consultation with ~~the appropriate resource agencies, including~~ CDFG, ~~the~~ Forest Service and ~~if the canal is located on NFS land or with~~ BLM, if appropriate ~~if the canal is on public land administered by BLM~~. Licensee c~~C~~onsultation with agencies regarding any canal shall be triggered when ~~if the 3-year average of recorded mortality for the canal is 30 percent higher or~~ more than five wildlife mortalities are ~~individuals more, whichever is greater, than the number of mortalities~~ reported for the canal in the preceding calendar year ~~Wildlife Movement Technical Memorandum (4-2)~~.

YB-TR6 Bat Management

In the first full calendar year after license issuance, Licensee shall document all known bat roosts within Project buildings (e.g., powerhouses, storage buildings valve houses), dams, or other structures that may be used as a roosting structure. The results of the inspection will be provided to CDFG, and to the Forest Service if the facility is located on NFS land or to BLM if the facility is on public land administered by BLM, at least 90 days prior to the annual consultation meeting (described in Measure YB-GEN-1) that follows collection of the information. If bats or signs of roosting are present where staff have a routine presence (i.e., at least daily or weekly), Licensee will attempt, where feasible, and in the calendar year following the annual consultation meeting described above, to place humane exclusion devices to prevent occupation of the structure by bats. Humane exclusion devices will be placed when bats are absent from the facility, generally between November 1 and February 28. Prior to installation of the humane exclusion devices, Licensee shall perform an inspection of the facility to ensure that overwintering bats are not trapped. If overwintering bats are present during the inspection, installation of humane exclusion measures shall be delayed. Licensee shall notify CDFG, Forest Service or BLM of the overwintering bats. Licensee shall consult with the CDFG, Forest Service or BLM during the annual consultation meeting described in Measure YB-GEN1 to identify future dates that would be suitable for installation of humane exclusion devices. All exclusion devices will be inspected on an annual basis and the facility will be reevaluated for roosting bats every 3 years after the initial exclusion devices are installed to insure that no new roosts or entry points have been established.

YB-TR7 Implement Bald Eagle Management Plan

Licensee shall, within 1 year of license issuance, implement the Bald Eagle Management Plan included in Licensee's application for new license, as approved by the Commission.

2.6 ESA-Listed Threatened and Endangered Species

NID's proposed Project does not include measures specifically related to species listed as threatened or endangered or critical habitat listed under the ESA.

2.7 Recreation Resources

YB-RR1 Implement Recreation Facilities Plan[10]

Licensee shall, within 1 year of license issuance, implement the Recreation Facilities Plan included in Licensee's application for new license as approved by the Commission.

YB-RR2 Provide Recreation Flow Information

Beginning as soon as reasonably feasible but no later than 1 year after license issuance, Licensee shall make the following mean daily streamflow information, as measured in cfs, available to the public from May 1 through November 30 of each year:

- Reservoir Storage
  - Jackson Meadows Reservoir
  - French Lake
  - Faucherie Lake
  - Sawmill Lake
  - Jackson Lake
  - Bowman Lake
  - Rollins Lake

- Streamflow
  - Middle Yuba River below Milton Diversion Dam
  - Canyon Creek below Bowman Dam
  - Bear River below Rollins Dam

Where existing streamflow gages do not measure a full range of flows, Licensee shall make a good faith effort to estimate the flow. The flow information shall be available to the public via the Internet, which may be accomplished through a third party. The flow information protocols may be modified upon mutual agreement of Licensee, responsive stakeholders and approval by the Commission.

[10] NID's proposed *Amended Recreation Facilities Plan* is included in Amended Appendix E4 of the Amended Application. The plan was included in the FLA and has been amended for inclusion in the Amended Appendix E4.

YB-RR3 French Dam Supplemental Flows for Whitewater Boating

Licensee shall, beginning in the first full calendar year after license issuance, provide in all water year types a Recreational Streamflow in Canyon Creek below French Dam starting between September 1 and September 30 of each year, until the date that French Lake elevation reaches 6,638 feet (corresponding to a useable storage of approximately 7,500 acre-feet). For the purpose of this measure, a Recreational Streamflow is defined as a target streamflow of between 120 cfs and 150 cfs over a continuous 24-hour period as measured at gage YB-306.

Licensee shall make a good faith effort to provide flows within 15 percent of the target flows.

Licensee shall make a good faith effort to provide a 7-day advance notice to the public of the beginning and ending date of each Recreation Streamflow Event via the same system Licensee uses to provide recreation streamflow information to the public (Measure YB-RR2). Licensee's notification for the Recreation Streamflow Events shall be as accurate as reasonably feasible, recognizing that streamflows cannot be guaranteed and are subject to change.

~~However, the actual streamflow may vary from the target streamflow range by up to 15 percent.~~

The Recreational Streamflow requirements are subject to temporary modification if required by equipment malfunction, as directed by law enforcement authorities, or in emergencies. An emergency is defined as an event that is reasonably out of the control of Licensee and requires Licensee to take immediate action, either unilaterally or under instruction by law enforcement, emergency services or other regulatory agency staff, to prevent imminent loss of human life or damage to ~~substantial~~ property~~damage~~. An emergency may include, but is not limited to, natural events such as landslides, storms or wildfires, vandalism, malfunction or failure of Project works, or other public safety incidences ~~and recreation accidents~~.

The Recreational Streamflow requirements are also subject to modification if required by non-routine maintenance projects on French Dam that might require an earlier drawdown than in September to accomplish the project.

If Licensee temporarily modifies the requirements of this condition, then Licensee shall make all reasonable efforts to promptly resume performance of such requirements.

YB-RR4 Milton Diversion Dam Supplemental Flows for Whitewater Boating

Licensee shall, beginning in the first full calendar year after license issuance, provide Recreational Streamflow Events in the Middle Yuba River downstream of Milton Diversion Dam in any years in which spill at Milton Diversion Dam, as measured at USGS's streamflow gaging station 11408550, is 300 cfs or greater after May 1. For the purpose of this measure, a Recreational Streamflow Event in the Middle Yuba River downstream of Milton Diversion Dam is defined as a continuous mean daily target streamflow of 300 cfs for at least 6 continuous days as measured at gage 11408550 after May 1.

Licensee shall make a good faith effort to provide flows within 10 percent of the target flows. However, it is recognized that some flow conditions (e.g., storm conditions) may be outside Licensee's ability to control during spring runoff.

Licensee shall make a good faith effort to provide a 7-day advance notice to the public of the beginning and ending date of each Recreation Streamflow Event via the same system Licensee uses to provide recreation streamflow information to the public (Measure YB-RR2). Licensee's notification for the Recreation Streamflow Events shall be as accurate as reasonably feasible, recognizing that streamflows cannot be guaranteed and are subject to change.

The Recreational Streamflow requirements are subject to temporary modification if required by equipment malfunction, as directed by law enforcement authorities, or in emergencies. An emergency is defined as an event that is reasonably out of the control of Licensee and requires Licensee to take immediate action, either unilaterally or under instruction of law enforcement, emergency services, or other regulatory agency staff, including actions to prevent the imminent loss of human life or damage to property. An emergency may include, but is not limited to: natural events such as landslides, storms, or wildfires; vandalism; malfunction or failure of Project works; or other public safety incidents.

If Licensee temporarily modifies the requirements of this condition, then Licensee shall make all reasonable efforts to promptly resume performance of such requirements.

YB-RR5 Bowman-Spaulding Diversion Dam Supplemental Flows for Whitewater Boating

Licensee shall, beginning in the first full calendar year after license issuance, provide Recreational Streamflow Events in Canyon Creek downstream of the Bowman-Spaulding Diversion Dam in any years in which flow as measured at USGS's streamflow gaging station 11416500 is 275 cfs or greater. For the purpose of this measure, a Recreational Streamflow Event is defined as a continuous mean daily target streamflow of 275 cfs for at least 5 continuous days as measured at gage 11416500 after April 1.

Licensee shall make a good faith effort to provide flows within 10 percent of the target flows. However, it is recognized that some flow conditions (e.g., storm conditions) may be outside Licensee's ability to control during spring runoff.

Licensee shall make a good faith effort to provide a 7-day advance notice to the public of the beginning and ending date of each Recreation Streamflow Event via the same system Licensee uses to provide recreation streamflow information to the public (Measure YB-RR2). Licensee's notification for the Recreation Streamflow Events shall be as accurate as reasonably feasible, recognizing that streamflows cannot be guaranteed and are subject to change.

The Recreational Streamflow requirements are subject to temporary modification if required by equipment malfunction, as directed by law enforcement authorities, or in emergencies. An emergency is defined as an event that is reasonably out of the control of Licensee and requires

Licensee to take immediate action, either unilaterally or under instruction of law enforcement, emergency services, or other regulatory agency staff, including actions to prevent the imminent loss of human life or damage to property. An emergency may include, but is not limited to: natural events such as landslides, storms, or wildfires; vandalism; malfunction or failure of Project works; or other public safety incidents.

If Licensee temporarily modifies the requirements of this condition, then Licensee shall make all reasonable efforts to promptly resume performance of such requirements.

2.8 Land Use

YB-LU1 Implement Transportation Management Plan[11]

Licensee shall, within 1 year of license issuance, implement the Transportation Management Plan included in Licensee's application for new license as approved by the Commission.

YB-LU2 Fire Prevention and Response Plan on Federal Land[12]

Licensee shall, within 1 year of license issuance, implement the Fire Prevention and Response Plan included in Licensee's application for new license as approved by the Commission.

2.9 Cultural Resources

YB-CR1 Implement Historic Properties Management Plan[13]

Licensee shall, within 1 year of license issuance, implement the Historic Properties Management Plan included in Licensee's application for new license as approved by the Commission.

2.10 Aesthetic Resources

YB-AER1 Implement Visual Resource Management Plan on Federal Land[14]

Licensee shall, within 1 year of license issuance, implement the Visual Resource Management Plan included in Licensee's application for new license as approved by the Commission.

[11] NID's *Amended Transportation Management Plan* is included in Amended Appendix E4 of the Amended Application. The plan was included in the FLA and has been amended for inclusion in the Amended Appendix E4.
[12] NID's proposed *Fire Prevention and Response Plan* is included in Amended Appendix E4 of the FLA. The plan has not been changed from the plan in the FLA.
[13] NID's proposed *Historic Properties Management Plan* is considered Privileged and is included in Volume IV of the FLA. The plan has not been changed from the plan in the FLA.
[14] NID's *Amended Visual Resource Management Plan* is included in Amended Appendix E4 of the Amended Application. The plan was included in the FLA and has been amended for inclusion in the Amended Appendix E4.

2.11 Socio-economic Resources

NID's proposed Project does not include measures specifically related to socio-economic resources.

2.12 Air Quality

NID's proposed Project does not include measures specifically related to air resources.

2.13 Noise

NID's proposed Project does not include measures specifically related to noise.

3.0 Rationale

Section 3 provides a description of the rationale for each PM&E measure currently proposed by NID, including if the PM&E measure was amended or added to PM&E measures in the FLA, why it was amended or added.

The rationale below is not part of NID's proposed PM&E measures, but provides supporting information regarding the proposed PM&E measures.

3.1 Rationale for Administrative Measures

YB-GEN1 Rationale for Annual Consultation with Forest Service and BLM

As proposed in NID's FLA, this measure would: 1) assure that NID's planned activities are efficiently coordinated to the extent possible with the Forest Service and BLM activities; 2) make the Forest Service and BLM aware of NID's planned O&M activities on federal land managed by the Forest Service of BLM; and 3) make NID aware of all pertinent Forest Service and BLM orders, rules and policies that might affect the planned activities. NID would meet with the Forest Service, BLM and other agencies in the first quarter of each year to discuss NID's planned Project O&M activities for that calendar year to the extent they are known. An annual meeting early in the year is appropriate since NID normally develops an annual maintenance plan early in each calendar year. NID would file documentation of the meeting with FERC, including recommendations by the Forest Service and BLM, if requested by FERC. The measure does not imply that NID may not proceed with planned Project O&M activities until NID has reviewed the planned O&M activity with the Forest Service and BLM, or relieve NID from obtaining all necessary approvals and permits for the planned maintenance work.

The measure has been amended to assure that NID discloses at the annual meetings any plans NID may have in the coming year for removal of hazard trees (i.e., trees that are at risk of falling and injuring recreationists, NID's O&M staff or Project facilities). The modification was specifically requested by the Forest Service at an August 15, 2011 meeting at which NID and

Relicensing Participants reviewed NID's proposed PM&E measures in the FLA. NID has not received any other requests from Relicensing Participants to modify this measure.

YB-GEN2 Rationale for Annual Employee Training

As proposed in NID's FLA, this measure would require NID to prepare and maintain a map of "sensitive areas" (e.g., known locations of non-native invasive plants, special-status species, Endangered Species Act (ESA)-listed species, cultural areas and other known sensitive areas) within the FERC Project Boundary. NID would provide environmental sensitivity training to Project operation and maintenance (O&M) staff when they are assigned to the Project and provide group training to all Project O&M staff annually. Providing training to staff when they are hired will assure new staff are quickly trained, and periodic training will serve as a refresher for staff to note any changes since the last training. Training would include the general identification of the special-status and ESA-listed species that are known to occur in the Project area and their location within the FERC Project Boundary, methods to avoid "sensitive areas" and minimize disturbance of special-status and ESA-listed species during critical life stages, a review of any pertinent Forest Service or BLM orders, rules or policies (e.g., limiting operating periods, or LOPs) that pertain to these special-status and ESA-listed species that may occur in the Project Area, and a review of FERC-approved license implementation plans that may affect O&M staff. Training would also include procedures for reporting to NID's management if staff observes any Project activity directly affecting the special-status and ESA-listed species or sensitive areas. To assure training is comprehensive and is accurate, NID would invite the Forest Service and BLM to assist in the annual training session.

Since filing the FLA, NID has not received requests from Relicensing Participants to modify this measure, so it has not been amended. NID has made minor editorial changes to the measure for clarification purposes.

YB-GEN3 Rationale for Annual Review of Special-Status Species Lists and Assessment of New Species on Federal Land

As proposed in NID's FLA, this measure would require NID to meet with the Forest Service and BLM annually to review pertinent special-status species lists. NID anticipates this would occur during the annual consultation meeting described in NID's Proposed Measure YB-GEN1 above. An annual review is appropriate because changes to special-status species lists are usually very minor from year to year. If a species has been added to the list and has a reasonable likelihood of being directly affected by the Project and adequate information is not available to assess likely Project effects, NID would develop a study plan to assess potential Project effects, provide the plan to the Forest Service or BLM, as appropriate, and other appropriate resource agencies for review, and file the plan with FERC. NID would perform the study as approved by FERC, and develop a report, including recommended measures. NID would provide the report to the Forest Service and BLM, as appropriate, for review, file the report with FERC, and implement those measures as directed by FERC.

The measure does not include ESA-listed species because NID assumes that if a species is listed as threatened or endangered under the ESA and has a reasonable likelihood of being affected by the Project, NID will be contacted directly by either the USFWS or NMFS, the agencies with jurisdiction over ESA-listed species. Of course, if the species are also listed as sensitive by either the Forest Service or BLM, NID would consult with the Forest Service or BLM, as appropriate.

Since filing the FLA, NID has not received requests from Relicensing Participants to modify this measure, so it has not been amended. NID has made minor editorial changes to the measure for clarification purposes.

YB-GEN4 Rationale for Consultation Regarding New Ground-Disturbing Activities on Federal Land

As proposed in NID's FLA, this measure would require that, if during the term of the new license, NID proposes ground-disturbing activities on federal land not addressed by the relicensing NEPA process and such activities have the potential to adversely affect special-status species and other resources on federal land managed by the Forest System or BLM, NID would develop with appropriate agencies reasonable PM&E measures to address the potential effects of the new ground-disturbing activities. Specifically, prior to performing the new ground-disturbing activity, NID would consult with the Forest Service or BLM, as appropriate, to: 1) discuss potential effects; 2) determine if additional information is needed to assess effects; 3) gather additional information, if needed; and 4) upon Forest Service's or BLM's request, as appropriate, enter into an agreement to fund a reasonable portion of Forest Service's staff or BLM's staff to perform staff activities related to the proposed ground-disturbing activity. NID assumes this arrangement would expedite Forest Service and BLM approvals of the new ground disturbing activities.

The measure does not include ESA-listed species because NID assumes that if NID proposes new ground disturbing activities that have a potential to affect ESA-listed species, NID would consult directly with either the USFWS or NMFS, the agencies with jurisdiction over that potentially-affected ESA-listed species. Of course, if the species are also listed as sensitive by either the Forest Service or BLM, NID would consult with the Forest Service or BLM, as appropriate.

The measure has been amended to assure that NID notify and consult with CDFG regarding any proposed new ground-disturbing activities. The modification was specifically requested by CDFG at an August 15, 2011 meeting at which NID and Relicensing Participants reviewed NID's proposed PM&E measures in the FLA. NID has not received any other requests from Relicensing Participants to modify this measure.

YB-GEN5 Rationale for Consultation Regarding New Facilities on Federal Land

As proposed in NID's FLA, this measure would require that, if during the term of the new license, NID proposes new facilities on federal land not addressed by the relicensing NEPA

process, prior to construction NID would develop and submit a Biological Evaluation (BE) to the Forest Service or BLM, as appropriate. NID assumes that a BE would only be required to satisfy Forest Service or BLM requirements for NEPA compliance (i.e., if the Forest Service or BLM regulations do not require that a BE be developed for this type of work – that is, the work is categorically exempt or otherwise not required, - then NID would not be required to develop a BE). The BE would assess potential effects to special-status species, and would include procedures to minimize adverse effects to special-status species.

The measure does not include ESA-listed species because NID assumes that if NID proposes a new facility that has a potential to affect ESA-listed species, NID would consult directly with either the USFWS or NMFS, the agencies with jurisdiction over that potentially-affected ESA-listed species. Of course, if the species are also listed as sensitive by either the Forest Service or BLM, NID would consult with the Forest Service or BLM, as appropriate.

The measure has been amended to assure that NID notify and consult with CDFG regarding any proposed new facilities. The modification was specifically requested by CDFG at an August 15, 2011 meeting at which NID and Relicensing Participants reviewed NID's proposed PM&E measures in the FLA. NID has not received any other requests from Relicensing Participants to modify this measure.

YB-GEN6 Rationale for Development and Implementation of Coordinate Operations Plan for Yuba-Bear Hydroelectric Project and Drum-Spaulding Project

As proposed in NID's FLA, this measure would require that NID develop a plan in consultation with PG&E to provide for coordination between the Drum-Spaulding Project and Yuba-Bear Hydroelectric Project to assure implementation of flow–related measures in the two Project licenses once they are issued. The plan will not address day-to-day operations of the Yuba-Bear Hydroelectric Project other than to the extent necessary to facilitate implementation of flow–related measures in the two Project licenses. The measure provides NID and PG&E 1 year to develop and file the plan with FERC.

NID did not include the Coordinated Operations Plan in the April 2011 FLA, or in this Amended Application, because NID and PG&E cannot negotiate the terms of the plan until such time as NID and PG&E each understands the conditions of the new licenses, which conditions will not be known until FERC issues the new licenses.

Since filing the FLA, NID has not received requests from Relicensing Participants to modify this measure, so it has not been amended. NID has made minor editorial changes to the measure for clarification purposes.

YB-GEN7 Rationale for Pesticide and Herbicide Use Restrictions on Federal Land

As described in the FLA, NID's current restrictions regarding the use of herbicides would continue. Currently, NID contracts with a licensed vegetation management specialist to use herbicides. Typically, NID applies herbicides once in early summer at upper elevation (>5,000

ft) Project facilities and once each in early summer and fall at lower elevation (<5,000 ft) Project facilities. Accord is the only herbicide used on NFS land, and only used with prior approval by the Forest Service. Herbicide applications are usually on downstream dam faces and at foot of dams and in the immediate vicinity of Project facilities. No herbicides are used in water conduits. As proposed in Measure YB-GEN7, NID would only use pesticides on NFS land and federal land administered by BLM with the approval on the Forest Service and BLM, as appropriate. NID would notify the Forest Service and BLM, as appropriate, of proposed uses of pesticides on NFS lands and federal land administered by BLM and obtain the appropriate agencies approval prior to application.

The measure has been slightly amended as specifically requested by BLM at an August 15, 2011 meeting at which NID and Relicensing Participants reviewed NID's proposed PM&E Measures in the FLA.

3.2 Rationale for Geology and Soils PM&E Measures

YB-G&S1 Rationale for Development and Implementation of Rollins Upgrade Construction Erosion Control and Restoration Plan

As proposed in NID's FLA, this measure would require NID prepare and file with FERC a specific plan to control erosion during construction of the Rollins Upgrade and for the restoration of areas disturbed during this construction activity. The measure would require NID to provide a draft of the plan to the appropriate agencies for a 30-day review period, and file the plan with evidence of consultation with FERC at least 90-days in advance of initiating construction. The plan would address the implementation of Best Management Practices (BMP) during construction of the Rollins Upgrade.

NID did not include the Rollins Upgrade Construction Erosion Control and Stabilization Plan in its FLA (or in its Amended Application) because NID expects the plan to be specific to the work approved by FERC in the new license, which will not be known until such time as FERC issues the new license, and the construction approach proposed by its contractor, who will be selected after the license is issued.

Since filing the FLA, NID has not received requests from Relicensing Participants to modify this measure, so it has not been amended.

YB-G&S2 Rationale for Development and Implementation of Recreation Facilities Construction Erosion Control and Restoration Plans

As proposed in the April 2011 FLA, this measure would require NID prepare and file with FERC a specific plan to control erosion during construction of recreation facilities as ordered by the FERC, and for the restoration of areas disturbed during the construction activity. The measure would require NID to provide a draft of the plan to the appropriate agencies for a 30-day review period, and file the plan with evidence of consultation with FERC at least 90-days in advance of

initiating construction. The plan would address the implementation of BMPs during construction of recreation facilities.

NID did not include the Recreation Facilities Construction Erosion Control and Stabilization Plan in its FLA (or in its Amended Application) because NID expects the plan to be specific to the work approved by FERC in the new license which will not be known until such time as FERC issues the new license, and the construction approach proposed by its contractor, who will be selected after the license is issued.

Since filing the FLA, NID has not received requests from Relicensing Participants to modify this measure, so it has not been amended.

YB-G&S3 Rationale for Implement Clear and Trap Creeks Channel Stabilization Plan

As proposed in NID's FLA, this measure would require NID prepare and file with FERC a specific plan to stabilize stream channels in both Trap and Clear creeks that have been destabilized due to Project operations and to avoid impacts due to future Project operations. NID anticipates it will consult with the Forest Service during preparation of the plan.

Since filing the FLA, NID has not received requests from Relicensing Participants to modify this measure, so it has not been amended.

3.3 Rationale for Water Resources PM&E Measures

YB-WR1 Rationale for Development and Implementation of Rollins Upgrade Construction Hazardous Materials Spill Prevention, Control and Countermeasure Plan

As proposed in NID's FLA, this measure would require NID prepare and file with FERC a specific plan for the control of hazardous materials that may be used during construction of the Rollins Upgrade. The measure requires NID to provide a draft of the plan to the appropriate agencies for a 30-day review period, and file the plan with evidence of consultation with FERC at least 90-days in advance of initiating construction.

NID did not include the Rollins Upgrade Construction Hazardous Materials Spill Prevention, Control and Countermeasure Plan in its FLA (or in its Amended Application) because NID expects the plan to be specific to the work approved by FERC in the new license which will not be known until such time as FERC issues the new license, and the construction approach proposed by its contractor, who will be selected after the license is issued.

Since filing the FLA, NID has not received requests from Relicensing Participants to modify this measure, so it has not been amended.

YB-WR2 Rationale for Development and Implementation of Recreation Facilities Construction Hazardous Materials Spill Prevention, Control and Countermeasure Plans

As proposed in NID's FLA, this measure would require NID prepare and file with FERC a specific plan for the control of hazardous materials that may be used during construction of the recreation facilities ordered by FERC. The measure requires NID to provide a draft of the plan to the appropriate agencies for a 30-day review period, and file the plan with evidence of consultation with FERC at least 90-days in advance of initiating construction.

NID did not included the Recreation Facilities Construction Hazardous Materials Spill Prevention, Control and Countermeasure Plan in its FLA (or in its Amended Application) because NID expects the plan to be specific to the work approved by FERC in the new license which will not be known until such time as FERC issues the new license, and the construction approach proposed by its contractor, who will be selected after the license is issued. Since filing the FLA, NID has not received requests from Relicensing Participants to modify this measure, so it has not been amended.

3.4 Rationale for Aquatic Resources PM&E Measures

YB-AQR1 Streamflows[15]

This measure in NID's April 2011 FLA included the streamflows proposed by NID to enhance aquatic resources. Section 6.3.2.1.2, *Effects of Streamflows*, of Exhibit E in NID's FLA provided NID's rationale for the minimum flow releases at 17 Project facilities, 16 of which are addressed in this amended YB-AQR1 measure.[16] The seventeenth Project facility, Fall Creek Diversion Dam, is addressed in NID's proposed YB-AQR8 measure.

Since NID filed its FLA, more than 120 relicensing meetings have been held with Relicensing Participants. The vast majority of those meetings were run by an independent facilitator and, typically, approximately 25 Relicensing Participants were in attendance. The collaborative negotiations covered a breadth of topics and geography, but focused primarily on flow-related PM&E measures for the Yuba-Bear Hydroelectric Project and the Drum-Spaulding Project. This effort included updating the HEC-ResSim Yuba-Bear Water Balance/Operations Model, in consultation with Relicensing Participants, and making numerous model-runs to determine how

[15] During negotiations with the Joint Agencies, the agencies said they might propose a general definition for the phrase "good faith" that is used in Measure YB-AQR1, Streamflows, (and elsewhere in NID's amended proposed PM&E measures and plans) but that the definition would not be part of the measure and would not affect the intent of the phrase as discussed in the negotiations (i.e., "good faith" would not change the meaning to that NID "shall"). NID proposed as a definition, "rigorously pursue with good intent and within the specifications of existing facilities and equipment."

[16] The existing conditions, or baseline, for aquatic resources were described in Section 6.3.1 of Exhibit of the FLA. Fishes are described in Section 6.3.1.1; amphibians in Section 6.3.1.2; aquatic turtles in Section 6.3.1.3; mollusks in Section 6.3.1.4; benthic macroinvertebrates (BMI) in Section 6.3.1.5; and 6) algae in Section 6.3.1.6. The discussion of fish was divided into: 1) special-status and important fish species (Section 6.3.1.1.1); 2) reservoir fish (Section 6.3.1.1.2); 3) stream fish (Section 6.3.1.1.3); 4) fish entrainment (Section 6.3.1.1.4); 5) fish stranding (Section 6.3.1.1.5); 6) fish passage barriers (Section 6.3.1.1.6); 7) distribution of fish as related to water temperature (Section 6.3.1.1.7); and 8) fish habitat-flow relationships (Section 6.3.1.1.8).

various streamflow regimes (i.e., flows that were intended to address ecological resources interests) impacted water supply and hydroelectric generation. The goal of the relicensing meetings over the last year was to reach agreement on as many flows, measures, and plans as reasonably possible with as many Relicensing Participants as possible given the tremendous complexity of the projects and the short period of time available to negotiate. Relicensing Participants were very appreciative that FERC provided approximately 3 months of additional time before Licensees had to file their Amended Applications, which allowed for greater opportunity for collaborative discussions and agreements.

NID is pleased to say that, on June 14, 2012, these efforts resulted in a major milestone in the relicensing. For the purposes of supporting NID's YB-AQR1, *Streamflows*, measure in this Amended Application, staff from the Joint Agencies[17] said they will recommend to management for their respective agency that NID's *Streamflows* measure in Table E3-3 be included, as drafted and filed in this Amendment, in each agency's preliminary 4(e) conditions, 10(a) recommendations, or 10(j) recommendations that will be submitted to FERC. With the exception of the express limitations noted in column three in Table E3-3, NID and the Joint Agencies agree that the eight-part *Streamflows* measure (YB-AQR1) is considered to be comprehensive due to the fact that some Relicensing Participants accepted certain components of the measure based on the inclusion or exclusion of other components in the measure. With the express limitations set forth in Table E3-3, and in lieu of previous flow-related measures filed by NID in its April 15, 2011 FLA, NID and the Joint Agencies request that FERC incorporate the agreed upon *Streamflows* measure listed in Table E3-3 in FERC's Environmental Impact Statement (EIS) document.

Table E3-3. Measure included in NID's Amended Application for which there is agreement with the Joint Agencies.

Designation of Proposed Measure	Description of Measure	Limitations to Joint Agencies' Agreement
YB-AQR1	Streamflows Part 1 - Water Year Types Part 2 - Minimum Streamflows Part 3 – Bowman-Spaulding Diversion Conduit Outages and Drum-Spaulding Project's Drum Canal Outages Part 4 – Milton Diversion Dam and Bowman-Spaulding Diversion Dam Overwintering Minimum Streamflow Adjustments Part 5 – Wilson Creek Diversion Dam Flow Setting Part 6 – Chicago Park Powerhouse Monitoring Part 7 – Milton Diversion Dam, Bowman-Spaulding Diversion Dam, and Dutch Flat Diversion Dam Spill Cessation Schedules Part 8 – Rollins Reservoir Elevation Control	The Joint Agencies support this measure with the following exception: 1. Minimum Streamflows in Fall Creek. Joint Agencies and NID intend to resolve this prior to the Joint Agencies' filing in July 2012. 2. Also, NID understands that the Joint Agencies are considering the potential inclusion of block flows (flows in addition to the Minimum Streamflows shown in Table 2 of Measure YB-AQR1) for the Middle Yuba River below the Milton Diversion Dam. NID has not included a provision for block flows in its Measure YB-AQR1, but NID has agreed to continue discussing this issue with other interested Relicensing Participants. In addition, in supporting this Streamflows measure, the Joint agencies may independently develop rationale statements that may differ from NID's rationale in support of this measure.

[17] In this discussion, the Forest Service, CDFG and BLM are collectively referred to as "the Joint Agencies."

Other entities played a significant role in the negotiation process. Specifically, the SWRCB was a key Relicensing Participant. While it would be pre-decisional for SWRCB to confirm its tentative agreement with the measures at this time, SWRCB staff understands that the *Streamflows* measure set forth in Table E3-3 was developed to balance ecological resources, water supply and hydroelectric generation. FWN was also an active Relicensing Participant in the negotiation process. FWN has said it "can live with"[18] the *Streamflows* measure set forth in Table E3-3, with the exception that some flows in the Middle Yuba River below Milton Diversion Dam as stated in Table E3-3 will not be acceptable to FWN in the absence of an agreement on block flows. FWN said it appreciates the fact that a further discussion of block flows by NID and Relicensing Participants is noted in column three of Table E3-3.

Provided below is NID's rationale for the amended Measure YB-AQR1, *Streamflows*. The rationale is presented for each part of the measure, which include: 1) Water Year Types; 2) Minimum Streamflows; 3) Bowman-Spaulding Diversion Conduit Outages and Drum-Spaulding Project's Drum Canal Outages; 4) Milton Diversion Dam and Bowman-Spaulding Diversion Dam Overwintering Minimum Streamflow Adjustments; 5) Wilson Creek Diversion Dam Flow Setting; 6) Chicago Park Powerhouse Motoring; 7) Milton Diversion Dam, Bowman-Spaulding Diversion Dam, and Dutch Flat Diversion Dam Spill Cessation Schedules; and 8) Rollins Reservoir Elevation Control.

Part 1. Rationale for Water Year Types

This measure establishes six water year (WY) types that would trigger various conditions (e.g., minimum flow releases) in NID's new license. This measure has been updated since the FLA with the addition of the sixth WY type for Extreme Critically Dry Water Years. As noted in the measure, the WY types are linked to CDWR's forecasts for annual unimpaired flow volume in the Yuba River at Smartville. Because the CDWR bulletin and end of year runoffs are periodically not published until as late the 10th of the month, the WY type would take effect beginning on the 15th of the month in which it is published or otherwise made available.

An additional update to this measure since the FLA is the addition of an "October update" using CDWR's monthly full natural flow for the Yuba River near Smartville when data are published in October for the full water year. Relicensing Participants agreed that performing an October update to the WY type based on the observed runoff volume allows operations to be more reflective of actual hydrologic conditions, rather than continuing to implement a forecast-based WY type after the water year has finished. Any updates to the WY type in fall must be available by November 1 in order to be implemented in some of the high-elevation locations in the Project. In case CDWR has an excessive delay in publishing the data and monthly full natural flow totals are not available in October, or if CDWR discontinues publication of these data, NID will continue implementing flows according to the forecast-based WY type determined by the last published CDWR Bulletin 120

[18] The "can live with it" consensus process was described in Section 2.3.6.8 of NID's Preliminary Application Document.

Relicensing Participants jointly concluded that the range of anticipated flows in the projects could be best divided into six WY types, based on data for the last 33 years of record. From a climatology standpoint, annual runoff volumes are distributed over a long period of time in such a way that the distribution can be described by its median and the amount of "skew" in the data. This skew is caused by wetter years having a larger variation away from the median than drier years, in terms of absolute differences in volume. This inherently splits the data into two asymmetrical tails. Because of the different influences on both sides of the median, the first split in hydrology types chosen was a "below normal" and "above normal" type. This is because the "normal" value is essentially the median (in this case, 2,190,000 ac-ft of runoff in a given water year as forecasted in the Yuba River at Smartville). All of the CDWR forecast data for the 33 years in the relicensing Period of Record (WY 1976 through WY 2008) were ranked by volume, plotted and analyzed for statistical differences.

The Extreme Critically Dry WY type would take effect when CDWR's forecast is 615,000 ac-ft or less of runoff at Smartville.[19] This WY type has the most extreme low streamflows in all seasons as compared to median conditions, due to a negligible snowpack and a lack of spring rain events to augment the flow. This leads to a very dry watershed throughout the spring and summer months. In these years, the Yuba-Bear Hydroelectric Project and Drum-Spaulding Project would not meet a major portion of consumptive water delivery demands for the duration of the summer and fall months. In the 33 years in the relicensing hydrology period of record, there was one (3% of the record) Extreme Critically Dry WY: 1977. This Extreme Critically Dry WY type was identified and has been added to the proposed WY type scheme since the FLA was filed, in recognition of the extraordinary conditions and potential for major effects on consumptive water supply deliveries in an extremely dry year such as 1977.

The Critically Dry WY type would take effect when CDWR's forecast is between 616,000 and 900,000 ac-ft of runoff at Smartville. This WY type has low streamflows in all seasons as compared to median conditions due to a negligible snowpack and a lack of spring rain events to recharge the storage reservoirs. This leads to a dry watershed throughout the spring and summer months and less water available to meet minimum streamflow requirements and consumptive water supply deliveries. In the 33 years in the relicensing hydrology period of record, there were three Critically Dry WYs (9% of the record): 1976, 1987 and 1988.

The Dry WY type would take effect when CDWR's forecast is between 901,000 and 1,460,000 ac-ft of runoff at Smartville. In Dry WYs, relatively low streamflows occur in the late winter and early spring due to a limited snowpack and no spring rain events occur to augment recharge the storage reservoirs. This leads to a dry watershed throughout the late spring and summer months and less water available to meet minimum streamflow requirements and consumptive water supply deliveries. In the 33 years in the relicensing hydrology period of record, there were seven (21% of the record) Dry WYs: 1978, 1984, 1989, 1993, 1996, 1999, and 2000.

The Below Normal WY type would take effect when CDWR's forecast is between 1,461,000 and 2,190,000 ac-ft of runoff at Smartville. This type of WY has a similar hydrograph shape to

[19] Historically, CDWR rounds its February, March, April and May forecast to the nearest 1,000 ac-ft.

the Dry WY in the late winter and early spring due to a similar snowmelt, but these years typically have an increased volume of spring and early summer runoff that help to recharge the watershed and reservoirs during those months. In the 33 years in the relicensing hydrology period of record, there were eight (24% of the record) Below Normal WYs: 1985, 1990, 1991, 1992, 1994, 2001, 2007 and 2008.

The Above Normal WY type would take effect when CDWR's forecast is between 2,190,000 and 3,240,000 ac-ft of runoff at Smartville. The typical Above Normal WY includes a relatively large snowmelt that starts in early spring and lasts through early summer, along with several storm events that cause spikes in the hydrograph throughout the spring. In the 33 years in the relicensing hydrology period of record, there were six (18% of the record) Above Normal WYs: 1979, 1981, 2002, 2003, 2004 and 2005.

The Wet WY type would take effect when CDWR's forecast is more than 3,240,000 ac-ft of runoff at Smartville. The typical Wet WY includes similar snowmelt characteristics to the Above Normal WY type, but is distinct in that it includes either several large spring storms or an especially large amount of snowmelt runoff. These runoff events often dwarf the remainder of the hydrograph and can act as geomorphic flushing flows. The late summer and fall portions of the Wet WY hydrograph are similar to an Above Normal WY. In the 33 years in the relicensing hydrology period of record, there were eight (24% of the record) Wet WYs: 1980, 1982, 1983, 1986, 1995, 1997, 1998 and 2006.

Figure E3-1 shows, in ascending order (i.e., driest to wettest WY), the annual unimpaired runoff at Smartville for the period from WY 1901 to 2011, the entire record at the Smartville Gage, and where relicensing WY type breaks would occur. Figure E3-2 shows the same data, but in chronological order, to better show the periodicity of different WY types over 110 years. Figure E3-3 shows how NID's proposed Water Year Type in this part of the measure would have been applied over the 33 years in the hydrology period of record. Table E3-4 shows the distribution of WY types by month for the relicensing period of record.

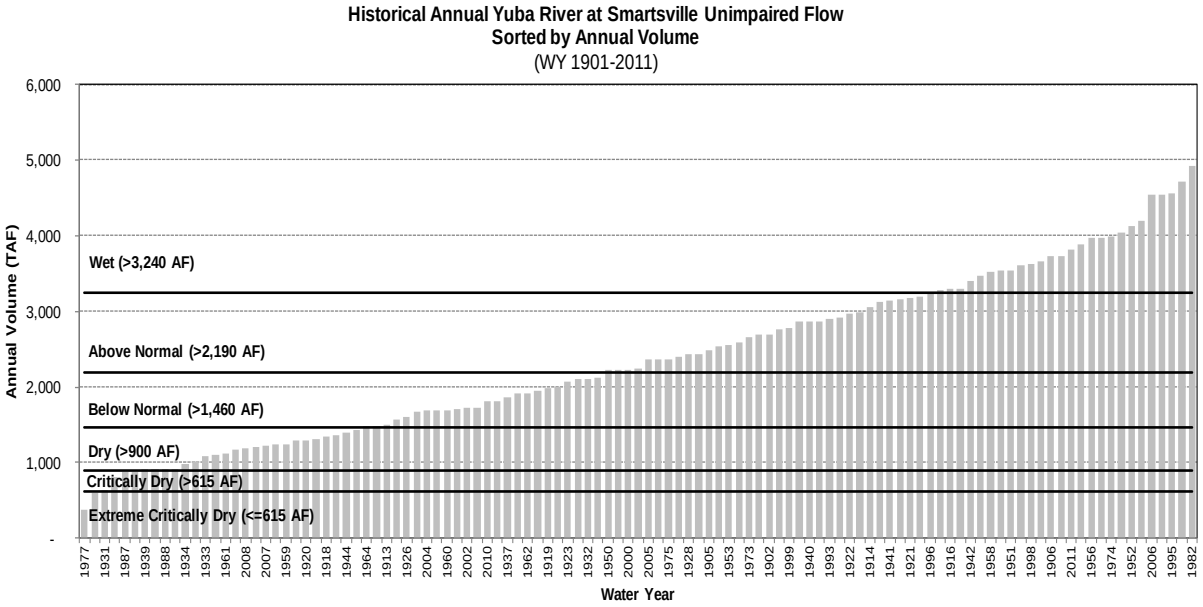


Figure E3-1. Distribution of Water Year types by annual unimpaired flow at Smartville in ascending order (i.e., driest to wettest WY) for period from WY 1901 through WY 2011.

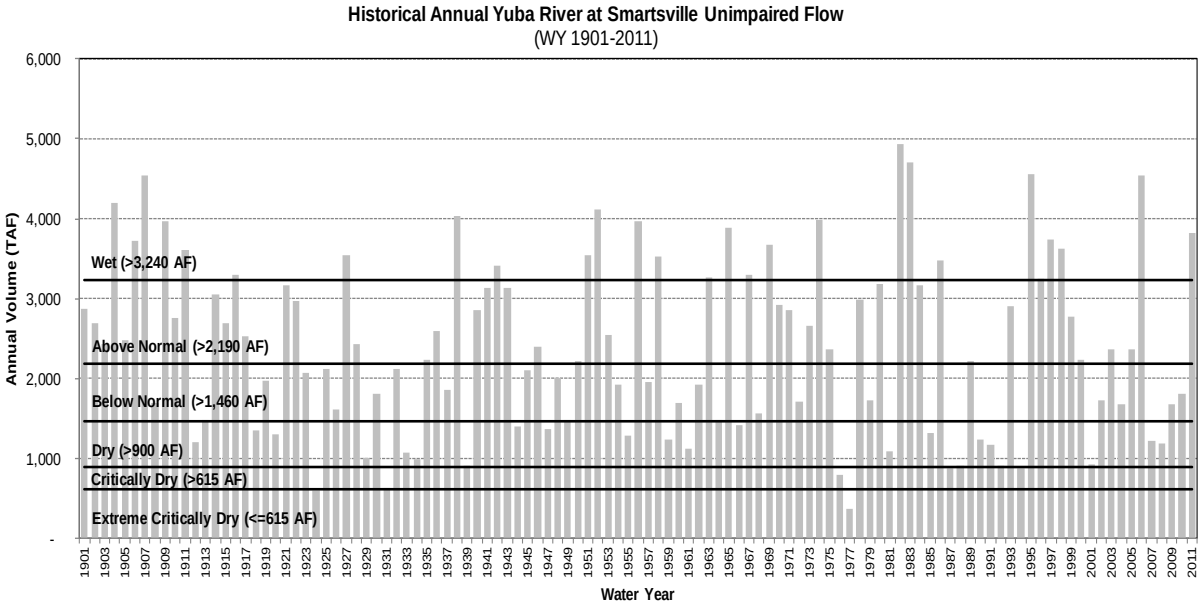


Figure E3-2. Distribution of Water Year types by annual unimpaired flow at Smartville in cchronological order for period from WY 1901 through WY 2011.

Table E3-4. Monthly distribution of water months from Water Year 1976 through 2008 based on Proposed Water Types (Extreme Critically Dry (ECD) = less than 616 thousand acre-feet (TAF); Critically Dry (CD) = 616 to 901 TAF; Dry (D) = 901 to 1460 TAF; Below Normal (BN) = 1461 to 2190 TAF; Above Normal (AN) = 2191 to 3240 TAF; and Wet (W) = more than 3240 TAF).

Calendar Year	Update Based on End-of Year Conditions	CDWR Bulletin 120 Forecast of Total Unimpaired Flow for Yuba River at Smartville in 1,000 acre-feet								Update Based on End-of Year Conditions			Distribution of Water Year Months						
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	ECD	CD	Dry	BN	AN	Wet	Total
1975		1,220	1,930	2,370	2,450	2,450	2,450	2,450	2,450	**2,371**	2,371	2,371	*0*	*0*	*1*	*1*	*9*	*0*	**11**
1976	2,371	**1,000**	**910**	**735**	**635**	635	635	635	635	**804**	804	804	*0*	*9*	*2*	*0*	*1*	*0*	**12**
1977	804	**560**	**330**	**325**	**290**	290	290	290	290	**370**	370	370	*11*	*1*	*0*	*0*	*0*	*0*	**12**
1978	370	**2,675**	**2,680**	**2,910**	**3,200**	3,200	3,200	3,200	3,200	**2,986**	2,986	2,986	*1*	*0*	*0*	*0*	*11*	*0*	**12**
1979	2,986	**1,415**	**1,585**	**1,620**	**1,635**	1,635	1,635	1,635	1,635	**1,727**	1,727	1,727	*0*	*0*	*1*	*10*	*1*	*0*	**12**
1980	1,727	**2,775**	**3,530**	**3,355**	**3,275**	3,275	3,275	3,275	3,275	**3,186**	3,186	3,186	*0*	*0*	*0*	*1*	*4*	*7*	**12**
1981	3,186	**1,470**	**1,240**	**1,320**	**1,216**	1,216	1,216	1,216	1,216	**1,098**	1,098	1,098	*0*	*0*	*10*	*1*	*1*	*0*	**12**
1982	1,098	**3,908**	**3,770**	**4,220**	**4,799**	4,799	4,799	4,799	4,799	**4,925**	4,925	4,925	*0*	*0*	*1*	*0*	*0*	*11*	**12**
1983	4,925	**3,270**	**4,000**	**4,750**	**4,950**	4,950	4,950	4,950	4,950	**4,706**	4,706	4,706	*0*	*0*	*0*	*0*	*0*	*12*	**12**
1984	4,706	**3,440**	**3,300**	**3,200**	**3,130**	3,130	3,130	3,130	3,130	**3,164**	3,164	3,164	*0*	*0*	*0*	*0*	*9*	*3*	**12**
1985	3,164	**1,690**	**1,520**	**1,610**	**1,450**	1,450	1,450	1,450	1,450	**1,319**	1,319	1,319	*0*	*0*	*8*	*3*	*1*	*0*	**12**
1986	1,319	**1,900**	**3,600**	**3,850**	**3,600**	3,600	3,600	3,600	3,600	**3,470**	3,470	3,470	*0*	*0*	*1*	*1*	*0*	*10*	**12**
1987	3,470	**1,040**	**1,030**	**1,020**	**855**	855	855	855	855	**874**	874	874	*0*	*8*	*3*	*0*	*0*	*1*	**12**
1988	874	**1,740**	**1,270**	**885**	**885**	885	885	885	885	**918**	918	918	*0*	*7*	*4*	*1*	*0*	*0*	**12**
1989	918	**1,570**	**1,440**	**2,340**	**2,330**	2,330	2,330	2,330	2,330	**2,226**	2,226	2,226	*0*	*0*	*2*	*1*	*9*	*0*	**12**
1990	2,226	**1,430**	**1,300**	**1,130**	**1,080**	1,080	1,080	1,080	1,080	**1,235**	1,235	1,235	*0*	*0*	*11*	*0*	*1*	*0*	**12**
1991	1,235	**770**	**540**	**1,190**	**1,130**	1,130	1,130	1,130	1,130	**1,177**	1,177	1,177	*1*	*1*	*10*	*0*	*0*	*0*	**12**
1992	1,177	**990**	**1,270**	**1,110**	**1,030**	1,030	1,030	1,030	1,030	**911**	911	911	*0*	*0*	*12*	*0*	*0*	*0*	**12**
1993	911	**2,550**	**2,820**	**2,980**	**2,980**	2,980	2,980	2,980	2,980	**2,903**	2,903	2,903	*0*	*0*	*1*	*0*	*11*	*0*	**12**
1994	2,903	**1,200**	**1,270**	**990**	**920**	920	920	920	920	**875**	875	875	*0*	*3*	*8*	*0*	*1*	*0*	**12**
1995	875	**3,440**	**3,030**	**4,170**	**4,500**	4,500	4,500	4,500	4,500	**4,556**	4,556	4,556	*0*	*1*	*0*	*0*	*1*	*10*	**12**
1996	4,556	**2,130**	**2,750**	**2,800**	**2,960**	2,960	2,960	2,960	2,960	**3,247**	3,247	3,247	*0*	*0*	*0*	*1*	*7*	*4*	**12**
1997	3,247	**4,840**	**4,320**	**4,040**	**3,900**	3,900	3,900	3,900	3,900	**3,735**	3,735	3,735	*0*	*0*	*0*	*0*	*0*	*12*	**12**
1998	3,735	**2,480**	**3,460**	**3,350**	**3,430**	3,430	3,430	3,430	3,430	**3,622**	3,622	3,622	*0*	*0*	*0*	*0*	*1*	*11*	**12**
1999	3,622	**2,340**	**3,010**	**2,840**	**2,845**	2,845	2,845	2,845	2,845	**2,778**	2,778	2,778	*0*	*0*	*0*	*0*	*11*	*1*	**12**
2000	2,778	**1,800**	**2,500**	**2,270**	**2,230**	2,230	2,230	2,230	2,230	**2,229**	2,229	2,229	*0*	*0*	*0*	*1*	*11*	*0*	**12**
2001	2,229	**1,260**	**1,250**	**1,020**	**1,040**	1,040	1,040	1,040	1,040	**922**	922	922	*0*	*0*	*11*	*0*	*1*	*0*	**12**
2002	922	**2,250**	**1,830**	**1,880**	**1,780**	1,780	1,780	1,780	1,780	**1,723**	1,723	1,723	*0*	*0*	*1*	*10*	*1*	*0*	**12**
2003	1,723	**2,160**	**1,840**	**1,750**	**2,190**	2,190	2,190	2,190	2,190	**2,370**	2,370	2,370	*0*	*0*	*0*	*9*	*3*	*0*	**12**
2004	2,370	**1,980**	**2,115**	**1,885**	**1,705**	1,705	1,705	1,705	1,705	**1,684**	1,684	1,684	*0*	*0*	*0*	*11*	*1*	*0*	**12**
2005	1,684	**2,070**	**1,755**	**2,000**	**1,980**	1,980	1,980	1,980	1,980	**2,368**	2,368	2,368	*0*	*0*	*0*	*9*	*3*	*0*	**12**
2006	2,368	**2,900**	**3,075**	**3,615**	**4,305**	4,305	4,305	4,305	4,305	**4,540**	4,540	4,540	*0*	*0*	*0*	*0*	*3*	*9*	**12**
2007	4,540	**1,200**	**1,450**	**1,250**	**1,230**	1,230	1,230	1,230	1,230	**1,228**	1,228	1,228	*0*	*0*	*11*	*0*	*0*	*1*	**12**
2008	1,228	**1,610**	**1,640**	**1,200**	**1,200**	1,200	1,200	1,200	1,200	1,193	1,193	1,193	*0*	*0*	*10*	*2*	*0*	*0*	**12**
ECD	*1*	*1*	*2*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*13*						
CD	*3*	*1*	*0*	*2*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*		*30*					
D	*8*	*9*	*10*	*9*	*9*	*9*	*9*	*9*	*9*	*9*	*9*	*9*			*108*				
BN	*3*	*11*	*8*	*6*	*5*	*5*	*5*	*5*	*5*	*3*	*3*	*3*				*62*			
AN	*10*	*7*	*7*	*8*	*8*	*8*	*8*	*8*	*8*	*10*	*10*	*10*					*102*		
W	*8*	*5*	*7*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*						*92*	
Total	**33**	**34**	**34**	**34**	**34**	**34**	**34**	**34**	**34**	**34**	**34**	**34**							**407**

Page Left Blank

Part 2. Rationale for Minimum StreamFlows

As noted above, on June 14, 2012, four days prior to the deadline for NID to file with FERC its Amended Application, for the purposes of supporting NID's YB-AQR1, *Streamflows*, measure in this Amended Application, staff from the Joint Agencies recommended to management for their respective agencies that NID's *Streamflows* measure in Table E3-2 be included, as drafted and filed in this Amendment, in each agency's preliminary 4(e) conditions, 10(a) recommendations, or 10(j) recommendations that will be submitted to FERC.

In general, the amended minimum flows provide significant enhancement to aquatic resources in stream reaches affected by the Project. The amended streamflows increase the average annual volume of water committed to aquatic resources from approximately 79,000 ac-ft in the FLA to approximately 134,000 ac-ft - an increase of over 55,000 ac-ft.

However, NID has not had adequate time since the June 14, 2012 milestone to prepare a detailed complete rationale for the Minimum Streamflows in Table 2 of this measure. To do this, NID first needs to make two runs of the HEC-ResSim Yuba-Bear Water Balance/Operations Model. The first run will include NID's proposed Yuba-Bear Hydroelectric Project PM&E measures described in NID's Amended Application and PG&E's Drum-Spaulding Project PM&E measures as described in PG&E's Amended Application – assuming consumptive water deliveries that occur under existing conditions.[20] The second model run would be the same as the first model run – but assume consumptive water deliveries amounts provided by NID and PCWA that are projected to occur by the year 2062.[21]

Based on the first model run and using information and models developed by NID and PG&E in the relicensing, NID will provide to FERC a description concerning how NID's proposed PM&Es in its Amended Application would affect, as compared to existing conditions:

- streamflows
- summertime elevation of the major project reservoirs
- water temperature in the Middle Yuba River, Canyon Creek, South Yuba River, and portions of the Bear River (i.e., stream reaches where water temperature models have been developed)
- resident fish and FYLF habitat
- water deliveries
- power generation

The second model run will be used to describe how NID's proposed PM&Es would affect future water deliveries.

[20] Existing water deliveries are described in Section 3.4.4.1 of Exhibit E in NID's FLA.
[21] Projected water deliveries are described in Section 3.4.4.2 of Exhibit E in NID's FLA.

NID estimates that it will require approximately three weeks to make the initial Water Balance/Operations Model runs, two weeks to make the necessary water temperature model runs, and two weeks to summarize the information. NID would also include with the supplemental information an estimate costs to implement the Minimum Streamflow measure and how the streamflow affect overall Project economics (refer to NID's Amended Section 7 in Amended Exhibit E). NID anticipates filing this supplemental material with FERC by mid August 2012.

Part 3. Rationale for Bowman-Spaulding Diversion Conduit Outages and Drum-Spaulding's Drum Canal Outages

This measure was not included in the FLA. The new measure addresses minimum flows during canal outages, which occur every year, to assure safe operations of the facility. The measure is divided into two parts. The first part applies to outages of the Bowman-Spaulding Canal. As included in the Amended Application, during non-outage periods, NID would make releases related to the canal from five locations: from Texas and Fall Creek diversion dams and directly from the canal into Clear, Trap and Rucker creeks (Measure AQR1, Streamflows). The new measure would provide that at all these locations during a Bowman-Spaulding Canal outage of 30 consecutive days or less, NID would assure that the flow in each of the creeks downstream of the facility is the same as the flow in the creek upstream of the facility. This would be accomplished by not diverting any water into the canal during the outage. In addition, the measure provides that if an outage extends past 30 consecutive days, NID would consult with the Forest Service, CDFG and the SWRCB regarding minimum flows. Adherence to the measure would protect aquatic resources in the creeks.

The second part of the measure applies to minimum flows from Dutch Flat Afterbay during outages of PG&E's Drum-Spaulding Project's Drum Canal, which is upstream of Dutch Flat Afterbay and provides water to the afterbay. The new measure provides that during a Drum Canal outage, NID will meet the minimum flows in its Amended Application (Measure AQR1, Streamflows)) until the reservoir reaches a elevation of 2,720ft, after which NID would release from the afterbay the same minimum flow release that is released by PG&E from the Drum Afterbay. This means that, during Drum Canal outages, NID would release from Dutch Flat Afterbay its normal minimum flow unless the afterbay impoundment is drawn down (the minimum flow releases are greater than the amount of water entering the afterbay), in which case NID would release from the afterbay the same minimum flow release that is made by PG&E from the Drum Afterbay.

The measure was developed in consultation with Relicensing Participants, and a final measure was provided to the Relicensing Participants. NID believes the agencies are in agreement, in concept, with the measure, but NID has not received final comments from the agencies.

Part 4. Rationale for Milton Diversion Dam and Bowman-Spaulding Diversion Dam Overwintering Minimum Streamflow Adjustments

This measure was not included in the FLA. The purpose of the measure is to conserve water when entering a drier water year from a wetter water year. The measure provides that in Wet

WYs, the Minimum Streamflow in winter may be reduced if precipitation is low, which could portent an upcoming drier WY. Specifically, in a Wet WY the Minimum Streamflow in the Middle Yuba River below Milton Diversion Dam in November, December or January would be reduced from 15 cfs to 10 cfs. In Canyon Creek in a Wet WY, the Minimum Streamflow below the Bowman-Spaulding Diversion Dam in January would be reduced from 20 cfs to 15 cfs. The trigger for reducing Minimum Streamflows is that precipitation from the previous July 1 up to the first day of the month in which Minimum Streamflows may change. The trigger is less than 75 percent of the average precipitation for the same period for the previous 30 years below Milton Diversion Dam and Bowman-Spaulding Diversion Dam, which is reasonable since the trigger applies to the Wet WY type. The measurement location for precipitation is NID's precipitation gage at Bowman Dam.

The measure is reasonable in that it, if implemented in all three months, the Minimum Streamflow reductions in the Middle Yuba River would conserve approximately 900 ac-ft of water for use in a drier WY; and in Canyon Creek, the reduction for one month would conserve approximately 300 ac-ft of water. The trigger is reasonable. Table E3-5 shows how often a reduction in Minimum Streamflow would have occurred over the past 30 years.

Table E3-5. Estimate of how often Minimum Streamflows would be reduced.[1]

Month	Average Precipitation from July 1 up to but not including the first day of the month for the Past 30 Years (1982 through 2011)	75 Percent of the Average Precipitation over the Past 30 Years	Years in which a reduction in Minimum Streamflow Would Have Occurred (out of 30)
MILTON DIVERSION DAM			
November	5.95	4.46	12
December	14.84	11.13	11
January	27.76	20.82	11
BOWMAN-SPAULDING DIVERSION DAM			
January	27.76	20.82	11

[1] For this analysis, NID used the triggers in column 3 (i.e., 75 percent average) as an approximation. However, in NID's proposed measure, the triggers would be calculated each year based on the past 30 years.

The measure was developed in consultation with Relicensing Participants, and a final measure was provided to the Relicensing Participants. NID believes the agencies are in agreement, in concept, with the measure, but NID has not received final comments from the agencies.

Part 5. Rationale for Wilson Creek Diversion Dam Flow Setting

This measure was not included in the FLA. The purpose of the measure is to provide reasonable compliance criteria at Wilson Creek Diversion Dam where access is difficult. The measure is divided into two portions. The first part pertains to the period of time that NID can access the dam safely. During this period, the measure provides that NID visit the dam once each week and set the outlet works to release 0.25 cfs. Note that if the upstream creek runs dry the Minimum Streamflow is 0.25 cfs or natural flow, whichever is less. The act of setting the outlet works to release 0.25 cfs is compliance – that is, NID is not required to install a streamflow gage downstream of the dam, which would be difficult in this stream, and continuously measure flow.

The second portion of the measure pertains to the Winter Period (i.e., from November 1, when NID is usually snowed-out of the dam area, through the following year when NID can access the dam via 4-wheel drive). In the Winter Period, NID will set the outlet works to release 0.25 cfs no later than November 1. NID is not required to visit or reset the outlet works until the following year when NID can access the dam using 4-wheel drive. The measure does not require NID to plow the road to gain access. As with the non-Winter Period, the act of setting the outlet works to release 0.25 cfs is compliance – that is, NID is not required to measure streamflow below the dam.

During negotiations regarding this measure, Joint Agencies stated that "safe access" is understood to mean 4-wheel drive access and does not require NID to plow the access road to obtain access.

The measure is reasonable in that it acknowledges the difficult access and remote location of the dam, the fact that the creek normally runs dry, and that the cost for installing and maintaining a streamflow gage downstream of the dam given the short section of stream and low flow conditions is not reasonable.

The measure was developed in consultation with Relicensing Participants. A draft measure was provided to the Relicensing Participants. NID believes the agencies are in agreement, in concept, with the measure, but NID has not received final comments from the agencies.

Part 6. Rationale for Motoring Chicago Park Powerhouse

This measure was not included in the FLA. The new measure addresses flows in the Bear River downstream of Chicago Park Powerhouse. During discussions with agencies after the FLA was filed, agencies requested NID make a good faith effort to motor the powerhouse from May through September 15. The purpose of the motoring is to provide additional flow in the reach for fish and FYLF if the powerhouse is not generating power during this period. NID agreed.

The measure was developed in consultation with Relicensing Participants, and a draft measure was provided to the Forest Service and CDFG, but no comments have been received to date.

Part 7. Rationale for Milton Diversion Dam, Bowman-Spaulding Diversion Dam and Dutch Flat Afterbay Dam Spill Cessation Schedules

This measure was not included in the FLA. The proposed spill cessation measure was developed in collaboration with the Joint Agencies and other Relicensing Participants. The spill cessation schedules are designed to provide a gradual transition from spill flows to the Minimum Streamflows. The spill cessation schedules are also intended to protect various aquatic resources (e.g., FYLF) while balancing recreation interests, including the interest in having advanced access to flow information and important safety interests. With regard to potential FYLF breeding sites in the Middle Yuba River, Canyon Creek, and the Bear River below Dutch Flat Afterbay, the spill cessation schedules are intended to protect potential FYLF egg masses.

Figures E3-5, E3-6, and E3-7 show the proposed spill cessation schedules for the different locations described in the measure. Note that trend of flows prior to the start of spill cessation shown in Figures E3-5here is based on arbitrary flows and is intended only to reflect the general trend of decreasing flows that would precede implementation of the spill cessation schedules.

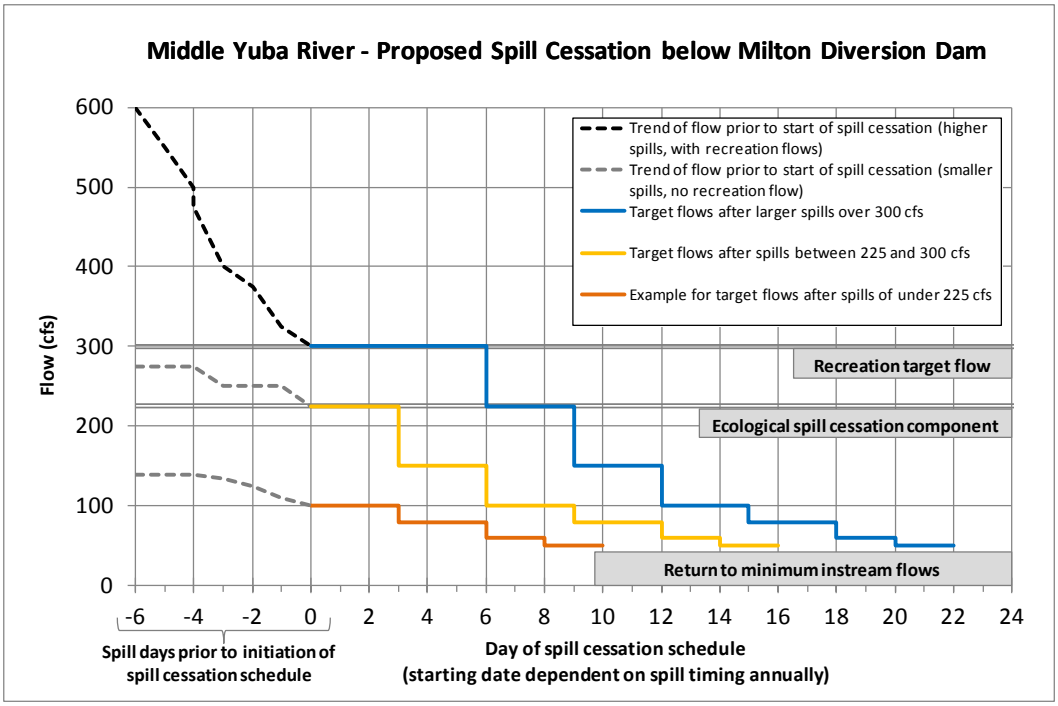


Figure E3-5. Spill cessation schedules for the Middle Yuba River below the Milton Diversion Dam (including supplemental recreation flows for whitewater boating), as shown in Part 7 of Measure YB-AQR1 and Measure YB-RR4.

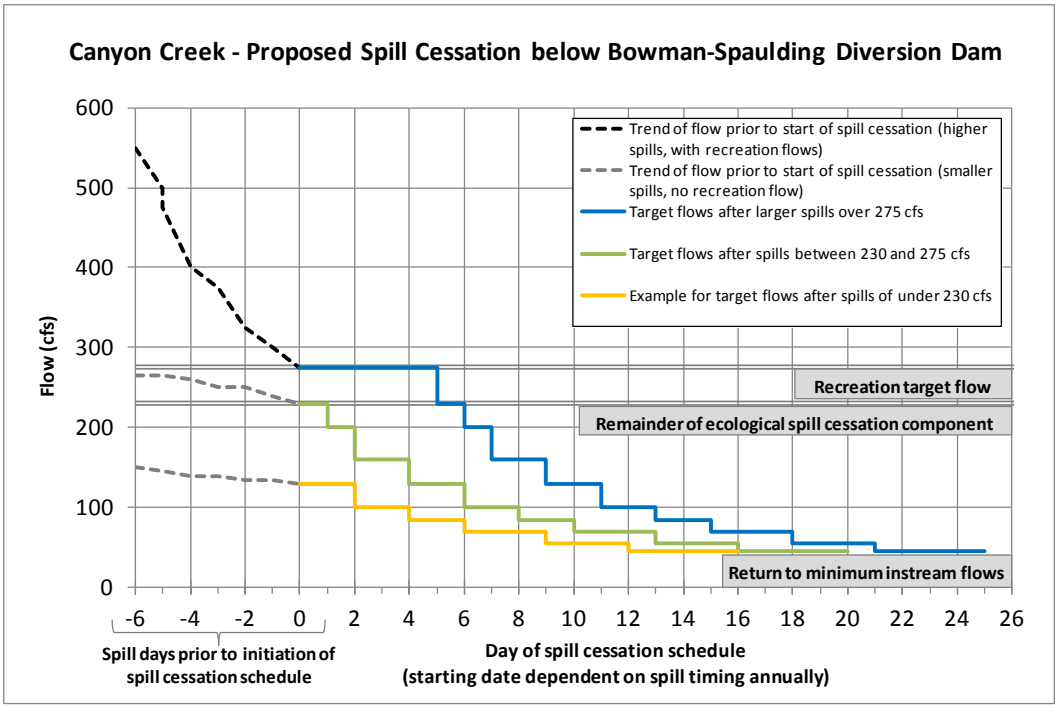


Figure E3-6. Proposed Spill Cessation Flow Schedules for Canyon Creek below the Bowman-Spaulding Diversion Dam (including supplemental recreation flows for whitewater boating), as shown in Part 7 of Measure YB-AQR1 and Measure YB-RR5.

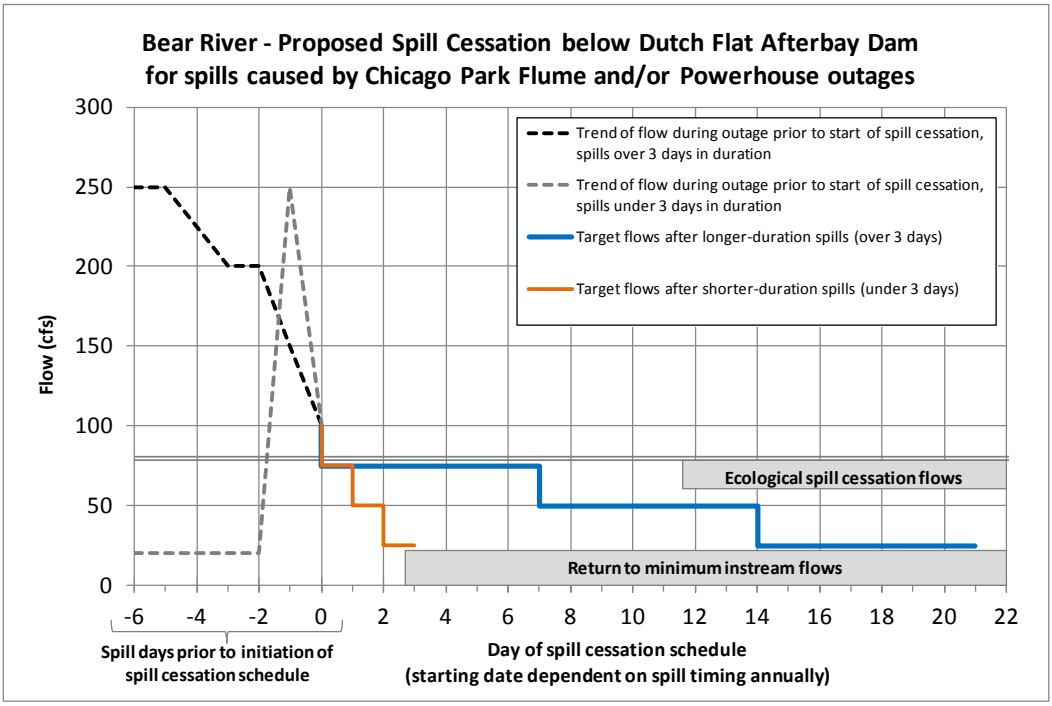


Figure E3-7. Proposed Spill Cessation Flow Schedules for Bear River below the Dutch Flat Afterbay Dam, for Licensee-Caused spills resulting from Chicago Park Flume and/or Powerhouse outages, as shown in Part 7 of Measure YB-AQR1.

The duration of the full spill cessation schedules shown in Figures E3-5, E3-6 and E3-7 are protective of FYLF egg masses, and would typically range from 21 days to as long as 25 days in years when the higher recreation-flow components are implemented at the beginning of the spill cessation period. If higher-magnitude spill flows are not reached, a shorter-duration portion of the spill cessation flow schedule would be implemented, as shown in the figures. The magnitude of the flow steps in the cessation schedules would result in a moderate decrease in river stage during the potential FYLF breeding season, and to be protective of FYLF regardless of the flow at which the spill cessation is initiated.

The proposed spill cessation schedules are not WY type dependent, and would be implemented in the specified seasons whenever dam spills of the magnitudes identified in the measure occur. Additionally, at Milton Diversion Dam and the Bowman-Spaulding Conduit Diversion Dam, ecological spill cessation components specified in measure YB-AQR1, Part 7, could be preceded by higher, supplemental flows for recreation purposes, which are described in NID's proposed measures YB-RR4 and YB-RR5. These supplemental flows are also shown in Figures E3-5 and E3-6.

The spill cessation schedule applicable to the Bear River below Dutch Flat Afterbay Dam is unique in that it would be implemented for NID-caused spills only, after outages at Chicago Park Powerhouse or Chicago Park Flume result in spills at Dutch Flat Afterbay Dam, due to the limited storage and Project control over flows at this location. If outage-caused spills occurred for a period of greater than three days, the longer spill cessation would be implemented to be protective of any FYLF egg masses that may have been laid at higher flows during the outage. If outage-caused spills occurred for a period of less than three days, it is highly unlikely that FYLF breeding would have taken place at the higher flows; therefore the shorter three-day spill cessation schedule would be implemented to be protective of FYLF, returning flows more quickly to the consistent minimum instream flow level.

Part 8. Rationale for Rollins Reservoir Elevation Control

This measure was not included in the FLA. This new measure addresses flows in the Bear River downstream of Rollins Reservoir. During discussions with agencies after the FLA was filed, agencies requested NID make a good faith effort to minimize rapid stage fluctuations in the Bear River downstream of Rollins Dam. The agencies had concerns regarding rapid fluctuations, which may affect aquatic resource. NID, in consultation with agencies, developed this measure. NID believes the Forest Service, CDFG, and BLM are in agreement with the measure.

YB-AQR2 Rationale for Bowman Lake Fish Stocking

As background, CDFG is mandated to support recreational angling in waters that cannot naturally sustain trout fisheries through production and stocking of catchable-trout, such as Bowman Lake. This mandate is enunciated in California Fish and Game Code (CFGC) § 13007 passed in 2006. The legislation requires that a minimum of 2.75 pounds of released trout per sport fishing license, of which 2.25 pounds must be of catchable size or larger. In addition, the legislation requires one-third of the fees derived from the issuance of sport fishing licenses, with

certain exceptions, be deposited into the Hatchery and Inland Fisheries Fund within the State Treasury, and these are to be used in support CDFG's programs related to the management, maintenance, and capital improvement of California's fish hatcheries and fish stocking. The current target level of annual production and stocking of trout in California waters is just over five million pounds, which corresponds to revenue of $12 million in license sales ($4 million allotment to meet the requirements of CFGC § 13007). Options to meet the production goal include augmenting funding from federal sources, entering cooperative fish stocking programs with willing partners, and purchasing fish from private hatcheries.

As proposed by NID in its FLA, this measure would require NID to reimburse CDFG for CDFG's stocking of fish in Bowman Lake up to current stocking levels and if requested by CDFG, which is consistent with CDFG § 13007. This measure would assure that the reservoir would continue to be a viable fishing reservoir and support recreational fishing.

Since filing the FLA, NID has not received requests from Relicensing Participants to modify this measure (though there have been some brief discussions with CDFG), so the measure has not been amended.

YB-AQR3 Rationale for Rollins Reservoir Fish Stocking

The rationale for this measure is similar to the rationale for NID's proposed YB-AQR2, *Bowman Lake Fish Stocking* measure. The measure would require NID to reimburse CDFG for CDFG's stocking of fish in Rollins Reservoir up to current stocking levels and if requested by CDFG. This measure would assure that the reservoir would continue to be a viable fishing reservoir and support recreational fishing.

Since filing the FLA, NID has not received requests from Relicensing Participants to modify this measure (though there have been some brief discussions with CDFG), so the measure has not been amended.

YB-AQR4 Rationale for Steephollow Creek Foothill Yellow-Legged Frog Monitoring

This measure was not included in the FLA, but has been added in recognition of potential effects of emergency spills of the Chicago Park Conduit into Steephollow Creek. The purpose of this measure is to identify effects by monitoring the foothill yellow-legged frog (FYLF) population in Steephollow Creek downstream of the Chicago Park Conduit spillway's confluence with the creek following emergency spills of more than 100 cfs that occur during the primary season of FYLF activity (from April 15 through June 15), and spills of more than 300 cfs that occur from June 16 through September 15. Emergency spills to evacuate the Chicago Park Conduit occur infrequently, but can produce elevated flows in Steephollow Creek for short periods. The FYLF population in Steephollow Creek downstream of the spillway confluence is robust, with large numbers of FYLF recorded during relicensing surveys in the lowermost 1,000 meter of the reach to Bear River confluence, and approximately 100 egg masses observed during an informal survey of the entire reach by NID and the Forest Service on May 22 and 23, 2012. Monitoring

will determine baseline conditions for the FYLF population, assess the effects of spills, and provide a basis for consideration of appropriate mitigation, if needed.

YB-AQR5 Rationale for Implement Fish Canal Rescue

This measure was not included in the FLA. After discussions with the Forest Service, BLM, CDFG and SWRCB, NID developed a Fish Canal Rescue Plan. The purpose of the plan is to describe the activities and procedures NID would implement to assure that fish in the water conveyance facilities are safely removed from the facility when it is dewatered. The plan also describes the procedures NID would follow to coordinate with appropriate federal and State agencies when implementing the plan. The plan describes: 1) the Project's water conveyance facilities that may be dewatered and where fish rescue will occur; 2) the procedures NID would typically follow when dewatering the water conveyance facilities where fish rescues will occur, including the periods when and circumstances under which dewatering normally occurs; and 3) the procedures and protocols, including agency consultations, NID would follow when performing fish rescue from the water conveyance facilities.

Implementation of the plan would assure that dewatering of Project canals would not adversely affect fish populations.
NID reviewed the plan with the Forest Service, BLM, CDFG and the SWRCB.

YB-AQR6 Rationale for Milton-Bowman Conduit Fish Entrainment[22]

This measure was not included in the FLA. NID installed hydroacoustic devices at the intake of the Milton-Bowman Conduit. From May through August 2009, the devices recorded an average of 232.0 counts per day. In the FLA, NID discussed four specific issues with the findings of the study. In summary: 1) Fish Population Studies found fish densities were similar above and below the diversion (1,738.9 fish/mile above and 1,731.9 fish/mile below), but the study suggested over 27,000 fish were entrained; 2) the 1.6 mile long section of stream total fish estimates from the fish population study ranged between 2,740 and 4,224 fish, but the entrainment results suggested over 27,000 fish were being entrained (7 to 9 times more than total population estimates); 3) similar hydroacoustic results at Dutch Flat No. 2 flume showed that the findings overestimated entrainment by a factor of 460; and 4) the hydroacoustic tranducers were installed in a manner that would detect milling fish in proximal slow water creating false positives.

NID has already addressed a similar situation at Dutch Flat No. 2 by installing fyke nets and directly sampling entrained fish. The results showed the dramatically lower actual entrainment figures in comparison to the overestimated hydroacoustic data. Therefore, NID is proposing to conduct a similar assessment at Milton Diversion Dam. Modifying and installing these direct-sample fyke systems is costly, requires significant fabrication and is challenging to install; however, NID is willing to propose this course of action because of the confidence that

[22] The Joint Agencies advised NID that they intend to include a requirement to install a fish screen at Milton-Bowman Diversion Conduit.

entrainment is not what is being represented by hydroacoustic data. Results of the fyke net sampling study would provide direct capture data to accurately determine the real rate of entrainment. Following the study, NID will consult with agencies to determine if any mitigative action (i.e. fish screen, etc.) is required.

YB-AQR7 Rationale for Rollins Dam Large Woody Material Management

This measure was not included in the FLA. Implementation of this measure would provide that large woody material, which would otherwise be collected and removed from Rollins Reservoir, would pass downstream of the dam and be deposited by natural conditions in the lower Bear River. This would enhance habitat complexity.

YB-AQR8. Rationale for Fall Creek Diversion Dam Minimum Streamflows[23]

The Fall Creek Diversion Dam Reach is a remote 1.3-mi-long section of Fall Creek that extends from the base of Fall Creek Diversion Dam at elevation 5,363 ft to the Fall Creek confluence with the South Yuba River at elevation 3,200 ft, approximately 3 miles upstream of the South Yuba River and Canyon Creek confluence.. The drainage between PG&E's upstream facilities and Fall Creek Diversion Dam is ephemeral in nature. Fall Creek Diversion Dam has no appreciable storage. The reach has a gradient of 20.9 percent. In 2008, NID did not find any fish in the reach, but rainbow, brook and brown trout are reported to occur (Table 6.3.1-4 in FLA.) FYLF surveys were not performed because the majority of the reach is above the upper elevation range for FYLF. From May through October in 2008 and 2009 under existing conditions, maximum water temperatures in the creek immediately upstream of the Bowman-Spaulding Diversion Dam ranged from 8.7° C in October 2009 to 16.8° C in August 2008. For the same period in the creek just upstream of the South Yuba River, maximum water temperatures ranged from 11.4° C in October 2009 to 17.9° C in July 2009. (Table 6.2.1-6 in Exhibit E of NID's FLA.) Since the stream is ephemeral and the reach is very short with very little accretion, NID performed a PHABSIM analysis, but did not develop a fish habitat time series, FYLF 2-D model or water temperature model for the reach.

In developing its minimum streamflow proposal in its FLA, NID considered that any water released by NID from Fall Creek Diversion Dam would be lost to water supply (i.e., could not be diverted to meet water deliveries) and power generation (i.e., could not pass through any powerhouses). NID also considered that in the spring of wetter WYs, NID curtails diversions from Fall Creek into the Bowman-Spaulding Conduit because the conduit is close to full without Fall Creek contributions. Therefore, NID proposed a minimum flow release of 0.2 cfs, which equaled the cumulative minimum flow release proposed by PG&E in its April 12, 2011 Drum-

[23] NID has included the Fall Creek Diversion Dam Minimum Streamflows and associated canal outage requirements in this spate measure because at the time the Amended Application was prepared, NID and the Joint Agencies had not completed discussion regarding the Fall Creek Diversion Dam, as stated in Table E3-3.

Spaulding Project FLA for Carr and Feeley Lake dams, which are located upstream of the Fall Creek Diversion Dam.[24] In addition, NID proposed a target minimum flow release of 0.5 cfs.

In comparison to the FLA, NID's amended minimum streamflow releases from Fall Creek Diversion Dam would augment the upstream releases by PG&E. Excluding the months of May and June, NID's proposed minimum streamflows are 1 cfs (a 0.6 cfs augmentation) in Extreme Critically Dry and Critically Dry WYs; 2 cfs (a 1 cfs augmentation) in Dry WYs; 3 cfs (a 1 cfs augmentation) in Below Normal WYs; and 4 cfs (a 2 cfs augmentation) in Above Normal and Wet WYs, except from October through January when the minimum streamflow would be 4 cfs or inflow, whichever is less. In all WY types, NID has proposed to release from 12.5 cfs to 20 cfs, or inflow if less in May and from 5 cfs to 9 cfs, or inflow, in June. This revised proposal would commit to minimum streamflows approximately 1,700 ac-ft to 4,200 ac-ft of water per year. This water could not be used for water supply or power generation.

NID withdrew it proposal in its FLA regarding a target flow because agencies said they could not accept a target flow (i.e., they said all proposed minimum flow releases needed to be a "hard number").

Table E3-6 shows the percent of the WUA for adult and spawning rainbow trout in Fall Creek downstream of the Fall Creek Diversion Dam Reach that corresponds to NID's amended minimum streamflow requirement. It is important to recognize that, to assure minimum streamflow requirements are met, NID would add a buffer of approximately 0.5 cfs to the Fall Creek Diversion Dam minimum streamflow releases, which would result in even more habitat than shown in Table E3-6.

Table E3-6. Percent of WUA for adult and spawning rainbow trout maximum WUA that corresponds to NID's amended Minimum Streamflows from Fall Creek Diversion Dam.[1]

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
ADULT RAINBOW TROUT[2]						
October	63%	63%	80%	90%	95%	95%
November	63%	63%	80%	90%	95%	95%
December	63%	63%	80%	90%	95%	95%
January	63%	63%	80%	90%	95%	95%
February	63%	63%	80%	90%	95%	95%
March	63%	63%	80%	90%	95%	95%
April	63%	63%	80%	90%	95%	95%
May	97%	97%	96%	92%	92%	92%
June	98%	98%	99%	100%	100%	100%
July	63%	63%	80%	90%	95%	95%
August	63%	63%	80%	90%	95%	95%
September	63%	63%	80%	90%	95%	95%

[24] PG&E's Amended Application now proposes a combined minimum streamflow release from Carr and Feeley lakes of 0.4 cfs in Extreme Critically Dry and Critically Dry WYs; 1 cfs in Dry WYs; and 2 cfs in Below Normal, Above Normal and Wet WYs.

Table E3-6. (continued)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
SPAWNING RAINBOW TROUT[3]						
April	15%	15%	27%	38%	46%	46%
May	84%	84%	90%	97%	97%	97%
June	53%	53%	59%	64%	68%	68%

[1] Due to the channel geometry in Fall Creek and the limits of NID's ability to make releases into the creek during the relicensing Instream Flow Study, the WUA curves for adult and juvenile rainbow trout continue to increase past the hydraulic extrapolation limit (163 cfs). Therefore, for the above table, NID truncated the analysis at a maximum flow of 163 cfs. In that case, the maximum habitat for adult rainbow trout (3,146 WUA per 1,000 linear ft of stream), which occurs at 8 cfs.

[2] Based on NID's relicensing Instream Flow Study, the maximum habitat for adult rainbow trout in Fall Creek below the Fall Creek Diversion Dam was 3,146 WUA per 1,000 linear ft of stream, which occurred at 8 cfs.

[3] The primary months of rainbow trout spawning at this elevation are April, May and June. Based on NID's relicensing Instream Flow Study, the maximum habitat for spawning rainbow trout in Fall Creek below Fall Creek Diversion Dam was 6,663 WUA per 1,000 linear ft of stream, which occurred at 30 cfs.

Given the very steep (20.9% gradient), short length (1.3 mi), remote location, and ephemeral nature (i.e., creek would go dry under natural conditions) of Fall Creek below Fall Creek Diversion Dam and the fact that water released from the dam is lost for water supply and power generation, NID believes its proposed minimum streamflows would provide a balance of resources and reasonable enhancement of the aquatic biota in the creek.

YB-AQR9. Rationale for Minimum Streamflows Compliance Measurement

The measure in the FLA listed 14 streamflow gages, which included five new gages, at which NID would monitor compliance with minimum flow releases. In addition the measure addressed provisions for minimum flow release monitoring until the five new gages were constructed.

The measure in the FLA has been amended in three ways. First, the measure now includes new streamflow monitoring gages in Texas, Clear, Fall, Trap and Rucker creeks downstream of the Bowman-Spaulding Conduit to monitor minimum flow releases from the conduit into those creeks. The modification is needed because the FLA did not include minimum flow releases from the conduit into Texas, Clear, Fall Trap and Rucker creeks, and the Amended Application does.

Second, the measure now states that the existing gages downstream of French (YB-306), Faucherie (YB-308) and Sawmill (YB-310) dams will be upgraded to be able to monitor minimum flow releases from those dams. The modification is needed because the existing gages are rated to measure up to 2.6 cfs, and the proposed minimum flow releases in the Amended Application from those dams have been increased from the FLA, with a maximum releases of 18 cfs.

Third, the measure states that the rating section for the streamflow gage downstream of Dutch Flat Afterbay (YB-197) will be improvement or relocated. The modification is needed because NID considers fieldwork to rate the gage at the existing location with the higher minimum streamflows proposed in the Amended Application to be unsafe.

Some of the above amendments were discussed with Relicensing Participant during discussions of minimum flow releases.

3.5 Rationale for Terrestrial Resources PM&E Measures

YB-TR1 Rationale for Implement Non-Native Invasive Plants[25] Management Plan

This measure and plan were included in the FLA, and the plan, which is in Amended Appendix E4 of this Amended Application, was thereafter amended based on discussions with the Forest Service and BLM. The purpose of the plan is to prevent the introduction of new non-native invasive plants (NNIP) into and control and/or eradicate known NNIP occurrences on federal land within the FERC Project Boundary. The overall purpose and general contents of the plan remain constant from the FLA, but there are changes to the details. Among the amendments to the plan that were generated through collaboration with the Forest Service and BLM are: 1) additional guidelines for the prevention of the spread of NNIP; 2) a changed timeline for weed surveys, with a 5-year interval for high use areas and a 10-year interval for low use areas, as defined in the plan; 3) hand treatment of target, small NNIP occurrences concurrent with surveys; 4) treatment of occurrences of yellow starthistle (on NFS land only) and Scotch broom; 5) treatment of new occurrences of specifically-targeted California Department of Food and Agriculture (CDFA) List C weeds; and 6) an earlier timeline for reporting on weed treatments.

In addition, the Forest Service requested NID combine its proposed Invasive Species Management Plan and Vegetation Management Plan (described in NID's proposed Measure YB-TR2) into a single integrated management plan. NID has not done this since the costs of combining the two plans into one would not lead to any additional protection for the resources.

YB-TR2 Rationale for Implement Vegetation Management Plan on Federal Lands

This measure and plan were included in the FLA, and the plan, which is in Amended Appendix E4 of this Amended Application, was thereafter amended based on discussions with the Forest Service, BLM and CDFG. The purpose of the plan is to provide guidance for the management of vegetation on federal land within the Project Boundary. The overall purpose and general contents of the plan remain constant from the FLA, but there are changes to the details. Among the amendments to the plan that were generated through collaboration with the Forest Service, BLM, CDFG are: 1) additional guidelines on assessing sites for and the success of re-vegetation, particularly the presence of NNIP; 2) separate NEPA analysis for cutting and removal of hazard trees outside the 35 foot clearance between vegetation and transmission line conductors; 3) addition of surveys for special-status plants on 10 year intervals; 4) limited operation periods (LOP) for specific special-status birds, including full protocol surveys under specific circumstances; and 5) additional reporting requirements for special-status plants and revegetation.

[25] Now called, per Forest Service Manual 2900 update, non-native, invasive plant (NNIP) species.

In addition, the Forest Service requested NID combine its proposed Invasive Species Management Plan(described in NID's proposed Measure YB-TR1 and Vegetation Management Plan into a single integrated management plan. NID has not done this since the costs of combining the two plans into one would not lead to any additional protection for the resources.

YB-TR3 Rationale for Bowman-Spaulding Transmission Line Avian Protection

This measure was not included in the FLA. The purpose of this measure is to provide protection to large avian species that may be injured or killed via collision with, and/or electrocution from the Bowman-Spaulding Transmission Line, which is part of the Project. This measure provides guidance for the identification and documentation of transmission poles and structures that are suspected of avian injury or death as well as the requirements for reporting such structures to the Forest Service, USFWS, and CDFG. Furthermore, this measure provides guidance to NID on the replacement of transmission poles and structures that are suspect of avian injury or death through the use of industry standards and guidelines developed by Avian Powerline Interaction Committee (APLIC), which is a cooperative effort of 39 utilities, Edison Electric Institute, USFWS, Electric Power Research Institute, National Rural Electrical Cooperative Association, and Rural Utilities Service.

The measure was provided to Relicensing Participants, but no comments have been received to date.

YB-TR4 Rationale for Consult When Replacing Wildlife Escape Facilities and Wildlife Crossing Facilities

This measure requires NID consult with CDFG regarding the design of a replacement wildlife escapement and wildlife crossing facilities to be sure they meet the most current guidelines for such facilities. Project canals, with the existing wildlife crossing opportunities, do not pose a problem for wildlife habitat connectivity. The crossings are in good condition and not in need of repair at this time. Current wildlife mortality in Project canals is low and wildlife escape ramps are in good condition and not in need of rehabilitation or repair at this time. However, if the wildlife crossing or escapement facilities become degraded and need replacement during the term of the new license, up-to-date standards will be applied to ensure the continued success of the facilities. This measure does not require NID to replace any existing facilities or add new facilities unless the facility is not in proper working condition. Existing wildlife crossing and escape facilities would be operated in substantially the same manner as they are currently operated. Any maintenance/replacement would be minor in nature (e.g., replacement of one device with another) and occur within the footprint of the existing facility.

The measure has been slightly amended as specifically requested by CDFG, Forest Service and BLM at August 15, 2011 and May 7, 2012 meetings at which NID and Relicensing Participants reviewed NID's proposed PM&E Measures in the FLA. The amendment included the addition of: 1) consultation on the replacement or retrofitting of crossings; and 2) identification of the CDFG as the primary agency for consultation regarding specification and design of the facility, and the Forest Service and BLM where appropriate.

The measure was provided to Relicensing Participants after the above amendments were included, but no comments have been received to date.

YB-TR5 Rationale for Monitor Animal Losses in Project Canals

As described in this measure in the FLA, NID would monitor wildlife mortality in Project canals, and annually report the results to CDFG, Forest Service, BLM and FERC. If reported wildlife mortalities in any one year increase by more than five, Licensee will consult with CDFG, Forest Service and BLM. Additional measures to address suspected Project-related causes may be developed in consultation with the agencies. While current wildlife mortality in Project canals is low, mortality may increase over the term of the new license. This measure would assure that trends in canal mortality are identified and proper actions would be put in place if needed.

The measure has been slightly amended as specifically requested by CDFG, Forest Service and BLM at August 15, 2011 and May 7, 2012 meetings at which NID and Relicensing Participants reviewed NID's proposed PM&E Measures in the FLA. The amendment changed the trigger for consultation regarding measures to address suspected Project-related animal losses with the CDFG, Forest Service and BLM where appropriate. The previous trigger was based on a 3 year average of recorded mortality for the canal being 30 percent higher or more than five individuals, whichever is greater, than the number of mortalities reported for the canal in Licensee's Wildlife Movement Technical memorandum (4-2). This trigger was changed to more than five individuals in the previous calendar year.

The measure was provided to Relicensing Participants after the above amendments were included, but no comments have been received to date.

YB-TR6 Rationale for Bat Management

As described in the FLA, this measure would assure that known and future bat roosts are not disturbed. While current Project O&M activities have not resulted in disturbances to bat roosts, the measure would require NID to install exclusion measures at facilities where roosts are currently known and at facilities where new roosts are discovered. Exclusion measures would be installed after fall migration has occurred and before bats return in spring, and each roost will be surveyed to ensure that all bats have vacated the facility prior to installation. NID would install surrogate roosts (bat houses) adjacent to facilities where exclusion measures have been implemented. In addition, NID would consult with CDFG, BLM, and FERC regarding the need for a bat friendly gate at the low-level outlet tunnel below Dutch Flat Afterbay Dam. Since NID proposes no changes to the Project that would reasonably affect bats, the proposed Project would have a less than significant effect on bats.

Since filing the FLA, NID reviewed the measure twice with Relicensing Participants (on August 15, 2011 and May 7, 2012) and has not received requests from Relicensing Participants to modify this measure, so it has not been amended.

YB-TR7 Rationale for Implement Bald Eagle Management Plan

This is a new measure. During discussions after the FLA was filed, the Forest Service, BLM and CDFG requested NID develop a Bald Eagle Management Plan for the purpose of protecting nesting pairs of bald eagles that could be affected by the Project. The agencies requested that the plan implement periodic surveys and define specific mitigation measures for the protection of occupied nests. As a result of these discussions, NID developed a Bald Eagle Management Plan, which is in Amended Appendix E4 of this Amended Application, whereby NID would, every 5 years, perform one complete nesting survey in accordance with the protocols developed by CDFG. The information collected during the nesting survey would be used to establish an LOP (i.e., January 1 through August 1) with a 1,000 ft buffer around occupied nests. Non-routine O&M activities, such as weed abatement, road maintenance, and construction requiring pneumatic or heavy equipment, performed by NID would not occur within the buffer while the LOP is in effect, unless it is determined that the nest is unoccupied. Emergency work within nest buffers will be considered exempt from the restriction imposed by the LOP, and agency notification of the action will occur within 48 hours. Routine Project O&M (e.g. use of snow-cats, helicopters and vehicles for accessing facilities; facilities inspections; cleaning of trash racks; etc) is also exempt from the LOP restrictions. The plan also specifies that NID will, as part of it annual employee training (Measure YB-GEN2) review mitigation measures (e.g. nest buffers and LOP), as they apply to planned O&M activities for the calendar year. The plan specifies annual reporting requirements, as well as reporting requirements for the nesting surveys.

The measure was provided to Relicensing Participants, but no comments have been received to date.

3.6 Rationale for Recreation Resources PM&E Measures

YB-RR1 Rationale for Implement Recreation Facilities Plan

The measure itself has not been modified. However, the Recreation Facilities Plan was amended and is included in Amended Appendix E4 of this Amended Application. Based on consultation with Relicensing Participants, NID has amended the Recreation Facilities Plan to include new major and minor capital improvements, expanded major rehabilitation activities and specifications, additional operational maintenance activities and clarifications, and revised monitoring program elements particularly related to recreation facility methods and triggers. NID's amendments to this Plan were made largely based on requests from the Forest Service and BLM during consultation to enhance Project recreational opportunities and improve the protection of the resources throughout the Project.

YB-RR2 Rationale for Provide Recreation Flow Information

As proposed in NID's FLA, this measure would provide real-time information regarding the stage of major Project reservoirs and flow in streams below major Project facilities. This information would be useful to recreationists in planning their recreational activities.

Since filing the FLA, NID has not received requests from Relicensing Participants to modify this measure, so it has not been amended.

YB-RR3 Rationale for French Dam Supplemental Flows for Whitewater Boating

This measure was included in NID's FLA. The measure would assure that NID provides whitewater boating flows in the Canyon Creek downstream of French Dam. There is one recognized whitewater boating run from French Dam (RM 18.4) to the NMWSE of Faucherie Lake (RM 16.5). This reach is a Class IV-V+, with a boatable range of 120 to 150 cfs for hardshell and inflatable kayaks.

The measure included in the FLA provided that NID would provide flows in the boatable flow range each year starting between September 1 and September 30 of each year and continuing until the date that French Lake elevation reaches 6,638 feet. NID amended the measure to: 1) note that NID would make a good faith effort to to provide flows within 15 percent of the target flows; and 2) NID would make a good faith effort to advise the public when flows in the boatable flow range are expected to occur using the same mechanism it would use to provide real-time flow information to the public (proposed Measure YB-RR2, *Provide Recreation Flow Information*).

NID has modified the measure regarding advance notice of a Recreation Streamflow Event and meeting the target flows.

Since filing the FLA, NID has not received specific requests from Relicensing Participants to modify this measure.

YB-RR4 Rationale for Milton Diversion Dam Supplemental Flows for Whitewater Boating

This is a new measure. The measure, in combination with NID's proposed Measure YB-AQR1, Part 7, *Dam Spill Cessation Schedules*, would assure that NID provides whitewater boating flows in the Middle Yuba River downstream of Milton Diversion Dam. There are two recognized whitewater boating runs on the Middle Yuba River from Milton Diversion Dam to YCWA's Our House Diversion Dam. The first extends from Milton Diversion Dam (RM 44.8) to Plumbago (RM 26.4). This reach is a solid Class V reach with challenging whitewater throughout much of the 18 miles, with a boatable range of 300 to 400 cfs for hardshell and inflatable kayaks. The second run extends from Plumbago (RM 26.4) to YCWA's Our House Diversion Dam (RM 12.5). This is a Class III/IV run, with estimated boatable flow range is 250 to 450 cfs for inflatable kayaks, 800 to 1,000 cfs for hardshell kayaks and 800 to 1,200 cfs for rafts.

The new measure included in the Amended Application would provide whitewater boating for six consecutive days at 300 cfs whenever flows are 300 cfs or greater at gage 11408550, located downstream of Milton Diversion Dam, after May 1. In addition, NID would make a good faith effort to advise the public when flows in the boatable flow range are expected to occur using the same mechanism it would use to provide real-time flow information to the public (proposed Measure YB-RR2, *Provide Recreation Flow Information*).

YB-RR5 Rationale for Bowman-Spaulding Diversion Dam Supplemental Flows for Whitewater Boating

This is a new measure. The measure, in combination with NID's proposed Measure YB-AQR1, Part 7, *Dam Spill Cessation Schedules*, would assure that NID provides whitewater boating flows in Canyon Creek downstream of Bowman-Spaulding Diversion Dam. There is one recognized whitewater boating run on Canyon Creek. The 3.3-mile-long run extends from a washed out bridge downstream of the Artic Mine (RM 3.3) to Golden Quartz on the South Yuba River just downstream of the confluence with Canyon Creek. This run is a Class V run, with a boatable range of 300 to 400 cfs for hardshell and inflatable kayaks.

The new measure included in the Amended Application would provide whitewater boating for five consecutive days at 275 cfs whenever flows are 275 cfs or greater at gage 11416500, which is located downstream of the Bowman-Spaulding Diversion Dam, after April 1. NID assumed accretion form the dam release to the run, which is located over 6 miles downstream of the dam, would increase the flow in the run to the boatable flow range. In addition, NID would make a good faith effort to advise the public when flows in the boatable flow range are expected to occur using the same mechanism it would use to provide real-time flow information to the public (proposed Measure RR2, *Provide Recreation Flow Information*).

3.7 Rationale for Land Use PM&E Measures

YB-LU1 Rationale for Implement Transportation Management Plan

The Transportation Management Plan is intended to provide guidance for the rehabilitation and maintenance of Primary Project Roads.

Since filing the FLA, minor changes have been made to the Transportation Management Plan based on discussions with the Forest Service at a July 27, 2011 meeting. The amendments pertained to signage and reference to how the Transportation Management Plan relates to other plans.

YB-LU2 Rationale for Implement Fire Prevention and Response Plan on Federal Lands

The Fire Prevention and Response Plan contains information on what agencies and plans have jurisdiction and direction for any fires on Project land, as well as data on the main cause of fires in the Project area, methods for preventing fires, information for reporting and extinguishing

fires and contacts at NID, BLM, and the Forest Service. The purpose of this plan is to provide fire prevention, reporting, and safe fire practices for NID personnel responsible for inspecting and maintaining the Project.

Since filing the FLA, NID has not received requests from Relicensing Participants to modify this measure, so it has not been amended.

3.8 Rationale for Cultural Resources PM&E Measures

YB-CR1 Rationale for Implement Historic Properties Management Plan

This measure and plan were included in the FLA, and the plan, which is in Volume IV of the FLA and is considered Privileged, have not been amended in this Amended Application. The purpose of NID's Historic Properties Management Plan (HPMP) is to prescribe specific actions and processes to manage historic properties within the Project APE. It is intended to serve as a guide for NID's operating personnel when performing necessary O&M activities and to prescribe site treatments designed to address ongoing and future effects to National Register-eligible historic properties. The HPMP also describes a process of consultation with appropriate state and federal agencies, as well as with Native Americans who may have interests in historic properties within the Project Area of Potential Effects (APE). NID's requirements detailed in the HPMP include: management measures; training for all O&M staff; routine monitoring of known cultural resources and, periodic review and revision of the HPMP.

As described in the FLA, NID plans to complete consultation regarding the HPMP and file with FERC a final HPMP by October 1, 2012. NID anticipates that FERC would then execute a Programmatic Agreement (PA) with SHPO and with the ACHP (should it choose to participate) to implement the HPMP. NID, the Tribes, the Forest Service, and BLM may be invited by FERC to participate in the PA as consulting parties. The final HPMP would become effective within 1 year after license issuance.

3.9 Rationale for Aesthetic Resources PM&E Measures

YB-CR1 Rationale for Implement Visual Resources Management Plan

This measure and plan were included in the FLA, and the plan, which is in Appendix E4 of this Amended Application, was thereafter amended based on discussions with the Forest Service. The purpose of the plan is to reduce the visual contrast of facilities on federal land managed by the Forest Service and administered by BLM. The plan provides a schedule for when mitigation measures would be implemented and provides direction on how to address visual impacts from modifications to the Project that are not covered under the FERC license and are located on federal land.

NID amended the plan based on discussions with the Forest Service. The main amendments pertained to removal of two measures that called for painting buildings a dark green color that was not feasible due to heat sensitive equipment being housed in the buildings. The remaining

measures pertained to painting storage and flow gage buildings, an auxiliary generator building, replacing a chain link fence and painting a traffic guard rail on the exterior sides.

Yuba-Bear Hydroelectric Project
FERC Project No. 2266-096

Amended Appendix E3

Attachment 1

Clean Version of NID's Proposed PM&E Measures

2.1 Administrative PM&E Measures

YB-GEN1 Annual Consultation with Forest Service and BLM[26]

Each year beginning in the first full calendar year after licensee issuance, Licensee shall consult with the Forest Service with regard to measures needed to ensure protection and utilization of resources on NFS land affected by the Project and with BLM with regards to measures needed to ensure protection and utilization of resources on public land administered by BLM affected by the Project. The date of the joint consultation meeting will be mutually agreed to by Licensee, the Forest Service and BLM but in general will be held 120 days prior to the beginning of the recreation season (i.e., no later than March 1) to facilitate implementation of flow management requirements and recreational management activities. At least 30 days in advance of the meeting, Licensee shall mail a letter to the Forest Service and BLM confirming the meeting location, time and agenda. At the same time, Licensee shall mail a copy of the letter to the USFWS, NPS, SWRCB, CDFG, and interested tribes, who may participate in the meeting if they chose to do so. In addition, the Forest Service and BLM may invite others stakeholders to attend the meeting.

Consultation shall include, but not be limited to:

- A status report regarding implementation of license conditions;
- Results of any studies performed over the previous year in formats agreed to by the Forest Service, BLM and Licensee during development of the study plans;
- Review of any non-routine maintenance relevant to the Forest Service and BLM;
- Discussion of any foreseeable changes to Project facilities or features;
- Discussion of any necessary revisions or modifications to resource plans included in the license;
- Discussion of needed protection measures for species newly listed as threatened, endangered, or special-status or, changes to existing management plans that may no longer be warranted due to de-listing of species or, to incorporate new knowledge about a species requiring protection; and
- Discussion of elements of current year maintenance plans, such as road maintenance and hazard tree removal.

A record of the meeting shall be kept by Licensee and shall include any recommendations made by the Forest Service for the protection of NFS land and resources or by BLM for the protection of public land and resources administered by BLM. Licensee shall file the meeting record, if requested, with the Commission no later than 60 days following the meeting.

[26] NID's proposed Measure YB-GEN1, *Annual Consultation with the Forest Service and BLM*, is similar to Article 69 in the existing license. Both measures require NID to consult with the Forest Service each year and prepare a summary of the consultation.

A copy of the record for the previous water year regarding instream flow, study reports, and other pertinent records shall be provided to the Forest Service and BLM by Licensee at least 60 days prior to the meeting date, unless otherwise agreed.

Copies of other reports related to monitoring, Project safety and non-compliance on NFS land and public land administered by BLM, as appropriate, shall be submitted to the Forest Service and BLM, as appropriate, concurrently with submittal to the Commission, with the goal of providing the material to the Forest Service and BLM no later than 90 days in advance of the annual meeting. These include, but are not limited to: any non-compliance report filed by Licensee, geologic or seismic reports, and structural safety reports for facilities.

YB-GEN2 Annual Employee Training

Licensee shall, beginning the first full calendar year after license issuance, annually perform employee awareness training. The goal of the training shall be to familiarize Licensee's operations and maintenance (O&M) staff with special-status species, non-native invasive plants and sensitive areas (e.g., special-status plant populations, non-native invasive plant populations, and historic property sites) that are known to occur within the FERC Project Boundary on NFS land or and public land administered by BLM, procedures for reporting to the Forest Service and BLM, and Forest Service and BLM orders, as appropriate. Licensee shall provide to each O&M staff a confidential map showing these sensitive areas including GPS coordinates, as well as pictures and other guides to assist staff in recognizing special-status species and non-native invasive plants. It is not the intent of this measure that Licensee's O&M staff performs surveys or becomes specialists in the identification of special-status species or non-native invasive plants. Licensee shall direct its O&M staff to avoid disturbance to sensitive areas, and to advise all Licensee contractors to avoid sensitive areas. If Licensee determines that disturbance of a sensitive area is unavoidable, Licensee shall consult with the Forest Service or BLM, as appropriate, if the disturbance may occur to NFS land or public land administered by BLM prior to any ground disturbing activities in the sensitive area to minimize adverse effects to sensitive resources.

YB-GEN3 Annual Review of Special-Status Species Lists and Assessment of New Species on Federal Land

Licensee shall, beginning the first full calendar year after license issuance, in consultation with the Forest Service and BLM, annually review the current list of special-status plant and wildlife species (species that are Forest Service Sensitive species or Tahoe National Forest Watch List species that might occur on NFS land in the Project area, or species that are on BLM's Sensitive list that might occur on public land administered by BLM in the Project area) that may be directly affected by Project operations. When a species is added to one or more of the lists, Licensee, in consultation with the Forest Service or BLM, as appropriate, shall determine if the species or un-surveyed suitable habitat for the species is likely to occur on such NFS land or public land administered by BLM. For such newly added species, if the Forest Service or BLM, as appropriate, determines that the species is likely to occur on such NFS land or public land administered by BLM, as appropriate, in the Project area that may be directly affected by the

Project, Licensee shall develop and implement a study plan in consultation with the Forest Service or BLM, as appropriate, to reasonably assess the effects of the Project on the species. Licensee shall prepare a report on the study including objectives, methods, results, Licensee's recommended resource measures where appropriate, and a schedule of implementation, and shall provide a draft of the final report to the Forest Service or BLM, as appropriate, for review and approval. Licensee shall file the report, including evidence of consultation, with the Commission and shall implement those resource management measures required by the Commission.

YB-GEN4 Consultation Regarding New Ground-Disturbing Activities on Federal Land

If Licensee proposes a ground-disturbing, Project-related activity on NFS land or public land administered by BLM that was not specifically addressed in the Commission's NEPA processes, Licensee, prior to filing the necessary documentation with FERC for FERC's approval, in consultation with the Forest Service or BLM, as appropriate, shall determine the potential Project-related effects and whether additional information is required to proceed with the planned ground-disturbing activity. Upon Forest Service's or BLM's request, as appropriate, Licensee shall enter into an agreement with the Forest Service or BLM, as appropriate, under which Licensee shall fund a reasonable portion of Forest Service's or BLM's staff time and expenses for staff activities related to the proposed ground-disturbing activity. CDFG shall be notified and, as appropriate, consulted on regarding any such new ground-disturbing activities.

YB-GEN5 Consultation Regarding New Facilities on Federal Land

Before taking actions to construct new Project features on NFS land or public land administered by BLM that may affect Forest Service special-status species (i.e. Forest Service sensitive and/or management indicator species) or their critical habitat on NFS land or BLM sensitive species or their critical habitat on public land administered by BLM, Licensee shall prepare and submit a biological evaluation (BE) for Forest Service or BLM approval, as appropriate. The BE shall evaluate the potential impact of the action on the species or its habitat. In coordination with the Commission, the Forest Service or BLM, as appropriate, may require mitigation measures for the protection of the affected species.
The biological evaluation shall:

- Include procedures to minimize adverse effects to special-status species.
- Ensure project-related activities shall meet restrictions included in site management plans for special-status species.
- Develop implementation and effectiveness monitoring of measures taken or employed to reduce effects to special-status species.

CDFG shall be notified and, as appropriate, consulted on regarding any such new facilities.

YB-GEN6 Development and Implementation of Coordinate Operations Plan for Yuba-Bear Hydroelectric Project and Drum-Spaulding Project

Licensee shall, within one year after issuance of new licenses for the Yuba-Bear Hydroelectric Project or Drum-Spaulding Project, whichever is later, file with the Commission for approval a Coordinated Operations Plan (Plan). Licensee shall develop the Plan in consultation with the licensee for the Drum-Spaulding Project. The purpose of the Plan shall be to provide for coordination between the Yuba-Bear Hydroelectric Project and Drum-Spaulding Project to assure implementation of flow–related measures in the two project licenses. Licensee shall file the Plan, with evidence of consultation with licensee of the Drum-Spaulding Project, with the Commission and Licensee shall implement those portions of the Plan approved by the Commission.

YB-GEN7 Pesticide and Herbicide Use Restrictions on Federal Land[27]

Licensee shall, beginning no later than 90 days of license issuance, not use pesticides or herbicides on NFS land or on public land administered by BLM or in areas affecting NFS land or public land administered by BLM to control undesirable woody and herbaceous vegetation, aquatic plants, insects, rodents, trash fish, etc., without the prior written approval of the Forest Service or BLM, as appropriate. During the annual consultation meeting described in Condition YB-GEN1, Licensee shall submit a request for approval of planned uses of pesticides or herbicides on NFS land or public land administered by BLM, as appropriate, for the upcoming year. Licensee shall provide information essential for review including specific locations and timeframes for application. Exceptions to this schedule may be allowed only when unexpected outbreaks of pests require control measures that were not anticipated at the time the report was submitted. In such an instance, an emergency request to the Forest Service or BLM, as appropriate and written approval by the Forest Service or BLM, as approval, may be made.

Licensee may also provide an Integrated Pest Management plan that describes planned pesticide use on a regular basis for the term of the license. Submission of this plan will not relieve Licensee of the responsibility of annual notification, review and reporting in compliance with applicable reporting requirements.

Licensee shall use on NFS land and public land administered by BLM, as appropriate, only those materials registered by the USEPA for the specific purpose planned. On federal land administered by BLM, Licensee shall use only those materials documented to be herbicide formulations and adjuvant approved for use on BLM-administered public land. Licensee shall strictly follow label instructions in the preparation and application of pesticides and herbicides and disposal of excess materials and containers.

[27] NID's Proposed Measure YB-T3, *Pesticide and Herbicide Use Restrictions on NFS Land and Public Land Administered by BLM*, is similar to Article 77 in the existing license. Both measures require NID obtain Forest Service approval for use of herbicides and pesticides on NFS land.

2.2 Geology and Soils PM&E Measures

YB-G&S1 Development and Implementation of Rollins Upgrade Construction Erosion Control and Restoration Plan

Licensee shall, in consultation with the appropriate agencies, prepare a Rollins Upgrade Construction Erosion Control and Stabilization Plan (Plan). Licensee shall provide the Plan to the appropriate agencies for a 30-day review and comment period. Licensee shall file the Plan, including evidence of consultation, with the Commission at least 90-days in advance of initiating construction for the Rollins Upgrade.

YB-G&S2 Development and Implementation of Recreation Facilities Construction Erosion Control and Restoration Plans

Licensee shall, in consultation with the appropriate agencies, prepare a Recreation Facilities Construction Erosion Control and Stabilization Plan (Plan). Licensee shall provide the Plan to the appropriate agencies for a 30-day review and comment period. Licensee shall file the Plan, including evidence of consultation, with the Commission at least 90-days in advance of initiating construction for the recreation facilities.

YB-G&S3 Implement Clear and Trap Creeks Channel Stabilization Plan

Licensee shall, within 1 year of license issuance, implement the Clear and Trap Creeks Channel Stabilization Plan included in Licensee's application for new license as approved by the Commission.

2.3 Water Resources

YB-WR1 Development and Implementation of Rollins Upgrade Construction Hazardous Materials Spill Prevention, Control and Countermeasure Plan

Licensee shall, in consultation with the appropriate agencies, prepare a Rollins Upgrade Construction Hazardous Materials Spill Prevention, Control and Countermeasure (SPCC) Plan (Plan). Licensee shall provide the plan to the appropriate agencies for a 30-day review and comment period. Licensee shall file the Plan, including evidence of consultation, with the Commission at least 90-days in advance of initiating construction for the Rollins Upgrade.

YB-WR2 Development and Implementation of Recreation Facilities Construction Hazardous Materials Spill Prevention, Control and Countermeasure Plans

Licensee shall, in consultation with the appropriate agencies, prepare a Recreation Facilities Construction Hazardous Materials Spill Prevention, Control and Countermeasure (SPCC) Plan (Plan). Licensee shall provide the Plan to the appropriate agencies for a 30-day review and comment period. Licensee shall file the Plan, including evidence of consultation, with the Commission at least 90-days in advance of initiating construction for recreation facilities.

2.4 Aquatic Resources

YB-AQR1 Streamflows[28]

Part 1. Water Year Types

Within 90 days of license issuance, Licensee shall in each year in each of the months of February, March, April, May and October determine water year type as described in Table 1 of this measure. Licensee shall use this determination in implementing articles and conditions of the license that are dependent on water year type. Water year types shall be defined as:

Table 1. Water Year types for the Yuba-Bear Hydroelectric Project.

Water Year Type	DWR Forecast of Total Unimpaired Runoff in the Yuba River at Smartville in Thousand Acre-Feet or DWR Full Natural Flow Near Smartville for the Water Year in Thousand of Acre-Feet[1]
Extreme Critically Dry	Equal to or Less than 615
Critically Dry	616 to 900
Dry	901 to 1,460
Below Normal	1,461 to 2,190
Above Normal	2,191 to 3,240
Wet	Greater than 3,240

[1] DWR rounds the Bulletin 120 forecast to the nearest 1,000 acre-feet. The Full Natural Flow is provided to the nearest acre-foot, and Licensee will round DWR's Full Natural Flow to the nearest 1,000 acre-feet.

In each of the months of February, March, April and May, the water year type shall be based on California Department of Water Resources (DWR) water year forecast of unimpaired runoff in the Yuba River at Smartville as set forth in DWR's Bulletin 120 entitled "*Water Year Conditions in California*." DWR's forecast published in February, March and April shall apply from the 15th day of that month to the 14th day of the next month. From May 15 through October 14, the water year type shall be based on DWR's forecast published in May.

From October 15 through February 14 of the following year, the water year type shall be based on the sum of DWR's monthly (not daily) full natural flow for the full water year for the Yuba River near Smartville as made available by DWR on the California Data Exchange Center (CDEC) in the folder named "FNF Sum." (Currently these data are available at: http://cdec.water.ca.gov/cgi-progs/stages/FNFSUM). If DWR does not make the full natural flow for the full water year available until after October 14 but prior to or on October 31, from 3 days after the date the full natural flow is made available until February 14 of the following year, the water year type shall be based on the sum of DWR's monthly full natural flow for the full water year as made available. If DWR does not make available the final full natural flow by October 31, the water year type shall remain unchanged through February 14 of the following year.

[28] The Forest Service, BLM and CDFG requested that NID's Yuba-Bear Hydroelectric Project's Amended Application Streamflows PM&E measure be as consistent as possible with PG&E's Drum-Spaulding Project's Amended Application Streamflow PM&E measure. To that end, NID has slightly reorganized the Parts in its proposed measure (e.g., *Water Year Types*, which was Part 3 in the FLA is Part 1 in this Amended Application), and tried to be as consistent as possible between the two measures.

Part 2. Minimum Streamflows

Licensee shall meet the Minimum Streamflows shown in Table 2 of this measure.

Minimum Streamflows in this part of the measure shall mean the instantaneous flow except as otherwise provided below, and Licensee shall record instantaneous streamflow at all gages as required by USGS (Article 8 of FERC's Form L-5, Standard Articles):

- Minimum Streamflows may be temporarily modified for short periods upon consultation with CDFG, SWRCB, Forest Service, and BLM and approval by SWRCB and Forest Service or BLM, as applicable, and notification to FERC.
- Minimum Streamflows may be temporarily modified due to an emergency. An emergency is defined as an event that is reasonably out of the control of Licensee and requires Licensee to take immediate action, either unilaterally or under instruction of law enforcement, emergency services, or other regulatory agency staff, including actions to prevent the imminent loss of human life or damage to property. An emergency may include, but is not limited to: natural events such as landslides, storms, or wildfires; vandalism; malfunction or failure of Project works; or other public safety incidents. If the Minimum Streamflows are so modified, Licensee shall notify FERC, CDFG, SWRCB, Forest Service, and BLM as soon as reasonably possible, but no later than the end of the next business day (business days do not include weekends and federal or state holidays) after such modification.

Except as otherwise provided, Licensee shall implement Minimum Streamflows shown in Table 2 of the measure within 90 days of license issuance unless a facility modification or construction is necessary. Where a facility must be modified or constructed to allow compliance with the required Minimum Streamflows, including flow measurement facilities, except as otherwise provided, Licensee shall submit applications for permits to modify or construct the facility as soon as reasonably practicable but no later than 2 years after license issuance and will complete the work as soon as reasonably practicable but no later than 2 years after receiving all required permits and approvals for the work. During the period before facility modifications or construction are completed, and starting within 90 days after license issuance, Licensee shall make a good faith effort to provide the specified Minimum Streamflows within the reasonable capabilities of the existing facilities.

Table 2. Minimum Streamflows[1] in cubic feet per second (cfs) for the Yuba-Bear Hydroelectric Project by month and Water Year Type as described in Part 1 of this measure.

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
MIDDLE YUBA RIVER - BELOW JACKSON MEADOWS DAM (COMPLIANCE POINT: USGS STREAMFLOW GAGE 11407815)						
October	11	11	13	15	20	35
November	11	11	13	15	20	35
December	11	11	13	15	20	35
January	11	11	13	15	20	35
February	11	11	13	15	25	40
March	11	11	16	25	35	60

Table 2. (continued)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
April	30	30	30	50	60	100
May	60	60	75	90	110	120
June	21	21	30	50	75	100
July	11	11	16	25	35	60
August	11	11	13	15	25	40
September	11	11	13	15	25	40
MIDDLE YUBA RIVER - BELOW MILTON MAIN DIVERSION DAM (COMPLIANCE POINT: USGS STREAMFLOW GAGE 11408550)						
October	4	6	6	10	10	15
November	4	6	6	10	10	10 or 15[1]
December	4	6	6	10	10	10 or 15[1]
January	4	6	6	10	10	10 or 15[1]
February	4	6	6	10	15	15
March	4	6	6	20	25	30
April	6	10	15	30	35	40
May[2, 3]	6	20	30	50	60	70
June	6	15	20	30	35	40
July	4	6	10	15	20	20
August	4	6	6	10	15	15
September	4	6	6	10	15	15
[1] Refer to Measure YB-AQR-1, Part 4, regarding adjustment of Minimum Streamflows below Milton Diversion Dam in November, December and January of Wet WYs. [2] Refer to Measure YB-AQR1, Part 7, regarding Milton Diversion Dam spill cessation schedule. [3] Refer to Measure YB-RR4 regarding Milton Diversion Dam recreation streamflow events.						
WILSON CREEK – BELOW WILSON CREEK DIVERSION DAM (COMPLIANCE POINT: ACT OF SETTING OUTLET WORKS)[4]						
October	0.25 or NF[4, 5]	0.25 or NF[4, 5]	0.25 or NF[4, 5]	0.25 or NF[4, 5]	0.25 or NF[4, 5]	0.25 or NF[4, 5]
November	0.25 or NF[4, 5]	0.25 or NF[4, 5]	0.25 or NF[4, 5]	0.25 or NF[4, 5]	0.25 or NF[4, 5]	0.25 or NF[4, 5]
December	0.25 or NF[4, 5]	0.25 or NF[4, 5]	0.25 or NF[4, 5]	0.25 or NF[4, 5]	0.25 or NF[4, 5]	0.25 or NF[4, 5]
January	0.25 or NF[4, 5]	0.25 or NF[4, 5]	0.25 or NF[4, 5]	0.25 or NF[4, 5]	0.25 or NF[4, 5]	0.25 or NF[4, 5]
February	0.25 or NF[4, 5]	0.25 or NF[4, 5]	0.25 or NF[4, 5]	0.25 or NF[4, 5]	0.25 or NF[4, 5]	0.25 or NF[4, 5]
March	0.25 or NF[4, 5]	0.25 or NF[4, 5]	0.25 or NF[4, 5]	0.25 or NF[4, 5]	0.25 or NF[4, 5]	0.25 or NF[4, 5]
April	0.25 or NF[4, 5]	0.25 or NF[4, 5]	0.25 or NF[4, 5]	0.25 or NF[4, 5]	0.25 or NF[4, 5]	0.25 or NF[4, 5]
May	0.25 or NF[4, 5]	0.25 or NF[4, 5]	0.25 or NF[4, 5]	0.25 or NF[4, 5]	0.25 or NF[4, 5]	0.25 or NF[4, 5]
June	0.25 or NF[4, 5]	0.25 or NF[4, 5]	0.25 or NF[4, 5]	0.25 or NF[4, 5]	0.25 or NF[4, 5]	0.25 or NF[4, 5]
July	0.25 or NF[4, 5]	0.25 or NF[4, 5]	0.25 or NF[4, 5]	0.25 or NF[4, 5]	0.25 or NF[4, 5]	0.25 or NF[4, 5]
August	0.25 or NF[4, 5]	0.25 or NF[4, 5]	0.25 or NF[4, 5]	0.25 or NF[4, 5]	0.25 or NF[4, 5]	0.25 or NF[4, 5]
September	0.25 or NF[4, 5]	0.25 or NF[4, 5]	0.25 or NF[4, 5]	0.25 or NF[4, 5]	0.25 or NF[4, 5]	0.25 or NF[4, 5]
[4] Refer to YB-AQR1, Part 5, regarding setting of the Wilson Creek Diversion Dam outlet works as the act of compliance. [5] NF means natural flow. The Minimum Streamflow requirement below Wilson Creek Diversion Dam shall be 0.25 cfs or the natural flow at the dam, whichever is less.						
JACKSON CREEK – BELOW JACKSON DAM (COMPLIANCE POINT: USGS STREAMFLOW GAGE 11414700)						
October	0.5	0.5	0.75	0.75	1	2
November	0.5	0.5	0.75	0.75	0.75	0.75
December	0.5	0.5	0.75	0.75	0.75	0.75
January	0.5	0.5	0.75	0.75	0.75	0.75
February	0.5	0.5	0.75	0.75	0.75	0.75
March	0.5	0.5	0.75	0.75	0.75	0.75
April	0.5	0.5	0.75	0.75	0.75	0.75
May	0.5	0.5	0.75	0.75	0.75	0.75
June	0.5	0.5	1	1	2	3
July	0.5	0.5	0.75	0.75	1	2
August	0.5	0.5	0.75	0.75	1	2
September	0.5	0.5	0.75	0.75	1	2

Table 2. (continued)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
CANYON CREEK – BELOW FRENCH DAM (COMPLIANCE POINT: USGS STREAMFLOW GAGE 11414410)						
October	5	5	6	9	9	9
November	5	5	6	9	9	9
December	5	5	6	9	9	9
January	5	5	6	9	9	9
February	5	5	6	9	14	18
March	5	5	6	9	14	18
April	5	5	6	9	14	18
May	5	5	6	9	14	18
June	5	5	6	9	14	18
July	5	5	6	9	14	18
August	5	5	6	9	14	18
September[6]	5	5	6	9	14	18
[6] Refer to Measure YB-RR3 regarding French Dam recreation streamflow event.						
CANYON CREEK – BELOW FAUCHERIE DAM (COMPLIANCE POINT: USGS STREAMFLOW GAGE 11414450)						
October	5	5	6	9	9	9
November	5	5	6	9	9	9
December	5	5	6	9	9	9
January	5	5	6	9	9	9
February	5	5	6	9	14	18
March	5	5	6	9	14	18
April	5	5	6	9	14	18
May	5	5	6	9	14	18
June	5	5	6	9	14	18
July	5	5	6	9	14	18
August	5	5	6	9	14	18
September	5	5	6	9	14	18
CANYON CREEK – BELOW SAWMILL DAM (COMPLIANCE POINT: USGS STREAMFLOW GAGE 11414470)						
October	5	5	6	9	14	18
November	5	5	6	9	14	18
December	5	5	6	9	14	18
January	5	5	6	9	14	18
February	5	5	6	9	14	18
March	5	5	6	9	14	18
April	5	5	6	9	14	18
May	5	5	6	9	14	18
June	5	5	6	9	14	18
July	5	5	6	9	14	18
August	5	5	6	9	14	18
September	5	5	6	9	14	18
CANYON CREEK – BELOW BOWMAN DAM						
There is no Minimum Streamflow release requirement from Bowman Dam.						

Table 2. (continued)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
CANYON CREEK – BELOW BOWMAN-SPAULDING DIVERSION DAM (COMPLIANCE POINT: USGS STREAMFLOW GAGE 11416500)						
October	4	6	10	10	10	15
November	4	6	10	10	10	15
December	4	6	10	10	10	15
January	4	6	10	10	10	15 or 20[7]
February	4	6	10	15	20	25
March	4	6	10	15	20	25
April	6	13	15	30	35	40
May[8, 9]	6	15	20	40	50	60
June	6	13	15	30	35	40
July	4	10	15	15	25	30
August	4	10	15	15	20	20
September	4	10	15	15	20	20
[7] Refer to Measure YB-AQR-1, Part 4, regarding adjustment of Minimum Streamflows requirement below the Bowman-Spaulding Diversion Dam in January of Wet WYs. [8] Refer to Measure YB-AQR1, Part 7, regarding Bowman Dam spill cessation schedule. [9] Refer to Measure YB-RR5 regarding Bowman-Spaulding Diversion Dam recreation streamflow event.						
TEXAS CREEK – BELOW TEXAS CREEK DIVERSION DAM[10] (COMPLIANCE POINT: NEW STREAMFLOW GAGE TO BE CONSTRUCTED)						
October	0.6	1	1	2	3	3
November	0.6	1	1	2	3	3
December	0.6	1	1	2	3	3
January	0.6	1	1	2	3	3
February	0.6	1	1	2	3	3
March	0.6	1	1	2	3	3
April	0.6	1	1	2	3	3
May	0.6	1	1	2	3	3
June	0.6	1	1	2	3	3
July	0.6	1	1	2	3	3
August	0.6	1	1	2	3	3
September	0.6	1	1	2	3	3
[10] Refer to Measure YB-AQR1, Part 3, regarding Minimum Streamflows during Bowman-Spaulding Conduit outages.						
CLEAR CREEK – BELOW BOWMAN-SPAULDING DIVERSION CONDUIT[11] (COMPLIANCE POINT: NEW STREAMFLOW GAGE TO BE CONSTRUCTED)						
October	1	1	1	1	2	2
November	1	1	1	1	2	2
December	1	1	1	1	2	2
January	1	1	1	1	2	2
February	1	1	1	1	2	2
March	1	1	1	1	2	2
April	1	1	1	2	3	3
May	1	1	1	2	4	6
June	1	1	1	2	3	3
July	1	1	1	1	2	2
August	1	1	1	1	2	2
September	1	1	1	1	2	2
[11] Refer to Measure YB-AQR1, Part 3, regarding Minimum Streamflows during Bowman-Spaulding Conduit outages.						

Table 2. (continued)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
TRAP CREEK – BELOW BOWMAN-SPAULDING DIVERSION CONDUIT[12] (COMPLIANCE POINT: NEW STREAMFLOW GAGE TO BE CONSTRUCTED)						
October	0.25	0.25	0.5	0.5	1	1.5
November	0.25	0.25	0.5	0.5	1	1.5
December	0.25	0.25	0.5	0.5	1	1.5
January	0.25	0.25	0.5	0.5	1	1.5
February	0.25	0.25	0.5	0.5	1	1.5
March	0.25	0.25	0.5	1	1.5	1.5
April	0.25	0.75	0.75	2	3	3
May	0.25	0.75	0.75	3	3	3
June	0.25	0.75	0.75	2	3	3
July	0.25	0.25	0.5	0.5	1	1.5
August	0.25	0.25	0.5	0.5	1	1.5
September	0.25	0.25	0.5	0.5	1	1.5
[12] Refer to Measure YB-AQR1, Part 3, regarding Minimum Streamflows during Bowman-Spaulding Conduit outages.						
RUCKER CREEK – BELOW BOWMAN-SPAULDING DIVERSION CONDUIT[13] (COMPLIANCE POINT: NEW STREAMFLOW GAGE TO BE CONSTRUCTED)						
October	0.3	0.3	0.5	2	2	2
November	0,3	0.3	0.5	2	2	2
December	0.3	0.3	0.5	2	2	2
January	0.3	0.3	0.5	2	2	2
February	0.3	0.3	0.5	2	2	2
March	0.3	0.3	0.5	2	2	2
April	0.3	0.3	0.5	2	2	2
May	0.3	0.3	0.5	2	3	3
June	0.3	0.3	0.5	2	2	2
July	0.3	0.3	0.5	2	2	2
August	0.3	0.3	0.5	2	2	2
September	0.3	0.3	0.5	2	2	2
[13] Refer to Measure YB-AQR1, Part 3, regarding Minimum Streamflows during Bowman-Spaulding Conduit outages.						
BEAR RIVER – BELOW DUTCH FLAT AFTERBAY DAM[14] (COMPLIANCE POINT: USGS STREAMFLOW GAGE 11427900)						
October	7	7	8	10	13	13
November	7	7	8	10	13	13
December	7	7	8	10	13	13
January	7	7	8	10	13	13
February	10	10	15	20	22	30
March	15	15	20	25	30	40
April	20	20	25	30	35	45
May	15	15	20	25	30	40
June	10	10	15	20	22	30
July	10	10	10	10	12	15
August	10	10	10	10	12	15
September	10	10	10	10	12	15
[14] Refer to Measure YB-AQR1, Part 3, regarding Minimum Streamflows during Drum-Spaulding Project Drum Canal outages.						
BEAR RIVER - BELOW CHICAGO PARK POWERHOUSE[15]						
There is no Minimum Streamflow release requirement from Chicago Park Powerhouse. [15] Refer to Measure YB-AQR1, Part 6, regarding motoring of the Chicago Park Powerhouse.						

Table 2. (continued)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
BEAR RIVER – BELOW ROLLINS DAM[16, 17] (COMPLIANCE POINT: USGS STREAMFLOW GAGE 11422500)						
October	20	40	40	55	65	65
November	15	20	23	30	40	50
December	15	20	23	30	40	50
January	15	20	23	30	40	50
February	15	20	23	30	40	50
March	15	20	25	30	40	50
April	15	40	40	50	75	75
May	20	45	45	65	100	100
June	20	50	50	65	125	125
July	20	50	50	70	109	125
August	20	50	50	70	109	125
September	20	50	50	70	80	80

[16] Refer to Measure YB-AQR1, Part 7, regarding Rollins Dam spill cessation schedule.
[17] Refer to Measure YB-AQR1, Part 8, regarding Rollins Reservoir operations control.

Part 3. Bowman-Spaulding Diversion Conduit Outages and Drum-Spaulding Project's Drum Canal Outages

This part of the measure pertains to outages of the Project's Bowman-Spaulding Diversion Conduit and outages of the Drum-Spaulding Project's Drum Canal that affect Minimum Streamflows described in Part 2 of this measure. For the purpose of this part of the measure, there are three types of canal outages: 1) annual planned outages; 2) non-routine planned outages; and 3) emergency outages. For the purpose of this part: an "annual planned outage" is defined as an outage that is typically taken around the same time each year for routine maintenance; a "non-routine planned outage" is defined as an outage for work that is high priority work (often major maintenance) and performed under planned conditions but is not performed during the annual planned outage period; and an "emergency outage" is defined as an outage due to an event that is reasonably out of the control of Licensee and requires Licensee to take immediate action, either unilaterally or under instruction of law enforcement, emergency services, or other regulatory agency staff, including actions to prevent the imminent loss of human life or damage to property. An emergency may include, but is not limited to: natural events such as landslides, storms, or wildfires; vandalism; malfunction or failure of Project works; or other public safety incidents.

<u>Bowman-Spaulding Conduit</u>

During the annual meeting (Measure YB-GEN1) Licensee shall inform meeting participants about annual planned outages of the Bowman-Spaulding Conduit, including the anticipated time-frame that the annual planned outages will occur, and any non-routine planned outages that are already planned at the time of the annual meeting for the upcoming year. Annual planned outages of the Bowman-Spaulding Conduit are normally, but not always, taken for approximately a 2-week period sometime between mid-June and early July. Licensee shall in good faith provide Forest Service, BLM, CDFG and SWRCB as much notice as is reasonably

possible for any annual planned outages or non-routine planned outages of the conduit that were not noted in the annual meeting or that become anticipated to occur at a time that is different than reported in the annual meeting. For all annual planned outages and non-routine planned outages, Licensee shall comply with the Canal Fish Rescue Plan (Measure YB-AQR4) as well as all applicable laws and permitting requirements. Licensee shall provide Forest Service, BLM, CDFG and SWRCB notice by electronic mail as soon as reasonably possible, but no later than the end of the next business day (business days do not include weekends and federal or state holidays) after an emergency outage occurs.

Table 3 of this measure provides the minimum streamflows required during the first 30 days of annual planned outages and non-routine planned outages of the Bowman-Spaulding Conduit. In an emergency outage of the Bowman-Spaulding Conduit, Licensee shall make a good faith effort to implement the minimum streamflows in Table 3 as soon as possible once the emergency occurs, and shall maintain the minimum streamflows for 30 days or until the emergency outage concludes. If an annual planned outage, non-routine planned outage, or emergency outage is anticipated to extend past 30 days, Licensee shall consult with the Forest Service, BLM, CDFG and SWRCB regarding minimum streamflows for the remainder of the outage after the first 30 days, and Licensee shall implement the collaboratively agreed upon minimum streamflows as soon as it is reasonably possible to do so for the remainder of the outage. Licensee shall also file any collaboratively agreed upon changes in minimum streamflows, as identified in Table 3, with the Commission.

Table 3. Minimum streamflow requirements during outages of the Bowman-Spaulding Diversion Conduit.

Stream – Facility	Minimum Streamflow during Annual Planned Outages, Non-Routine Planned Outages and Emergency Outages
Texas Creek – Below Texas Creek Diversion Dam	Flow in Texas Creek downstream of the Texas Creek Diversion Dam shall equal flow in Texas Creek upstream of the Texas Creek Diversion Dam. Licensee shall comply with this requirement by not diverting any water from Texas Creek into the Bowman-Spaulding Conduit during the outage (i.e., monitoring streamflow upstream in Texas Creek upstream of Texas Creek Diversion Dam during the outage shall not be required).
Clear Creek – Below Bowman-Spaulding Diversion Conduit	Flow in Clear Creek below the Bowman-Spaulding Conduit shall equal flow in Clear Creek upstream of the Bowman-Spaulding Conduit. Licensee shall comply with this requirement by not diverting any water from Clear Creek into the Bowman-Spaulding Conduit during the outage (i.e., monitoring of the streamflow in Clear Creek upstream of Bowman-Spaulding Conduit during the outage shall not be required).
Trap Creek – Below Bowman-Spaulding Diversion Conduit	Flow in Trap Creek below the Bowman-Spaulding Conduit shall equal flow in Trap Creek upstream of the Bowman-Spaulding Conduit. Licensee shall comply with this requirement by not diverting any water from Trap Creek into the Bowman-Spaulding Conduit during the outage (i.e., monitoring of the streamflow in Trap Creek upstream of Bowman-Spaulding Conduit during the outage shall not be required).
Rucker Creek – Below Bowman-Spaulding Diversion Conduit	Flow in Rucker Creek below the Bowman-Spaulding Conduit shall equal flow in Rucker Creek upstream of the Bowman-Spaulding Conduit. Licensee shall comply with this requirement by not diverting any water from Rucker Creek into the Bowman-Spaulding Conduit during the outage (i.e., monitoring of the streamflow in Rucker Creek upstream of Bowman-Spaulding Conduit during the outage shall not be required).

<u>Drum-Spaulding Project's Drum Canal</u>

During outages of the Drum Spaulding Project's Drum Canal, which is upstream of Dutch Flat Afterbay Dam, Licensee shall adhere to the Minimum Streamflow below Dutch Flat Afterbay Dam shown in Table 3 of Part 2 of this measure until Dutch Flat Afterbay reaches an elevation of

2,700 feet, after which the minimum streamflow below Dutch Flat Afterbay Dam during the Drum Canal outage shall be outflow equals inflow.

Part 4. Milton Diversion Dam and Bowman-Spaulding Diversion Dam Overwintering Minimum Streamflow Adjustments

This part pertains to adjustments in the Minimum Streamflows described in Part 2 of this measure at Milton Diversion Dam in November, December and January of Wet Water Years and at Bowman-Spaulding Diversion Dam in January of Wet Water Years.

Milton Diversion Dam

In November, December and January of Wet water years, the Minimum Streamflow in the Middle Yuba River downstream of Milton Diversion Dam shall be 15 cfs unless the precipitation as measured at Licensee's weather station at Bowman Lake from the previous July 1 up to but not including the first day of the month is equal to or less than 75 percent of the annual average precipitation for the same period for the most recent 30 years. In that case, the Minimum Streamflow shall be 10 cfs.

Bowman-Spaulding Diversion Dam

In January of Wet water years, the Minimum Streamflow in the Canyon Creek downstream of Bowman-Spaulding Diversion Dam shall be 20 cfs unless the precipitation as measured at Licensee's weather station at Bowman Lake from the previous July 1 up to but not including the first day of the month is equal to or less than 75 percent of the annual average precipitation for the same period for the most recent 30 years. In that case, the Minimum Streamflow shall be 15 cfs.

Part 5. Wilson Creek Diversion Dam Flow Setting

This part pertains to compliance with the Minimum Streamflows described in Part 2 of this measure at Wilson Creek Diversion Dam.

Non-Winter Period

Licensee shall, within 90 days of license issuance and except for the "Winter Period" described below, check the outlet works at the Wilson Creek Diversion Dam once each week (i.e., from Sunday to Saturday) and, if needed, re-set the outlet works to make the Minimum Streamflow release for the Wilson Creek Diversion Dam set forth in Table 1 of this measure. During this time period, Licensee's compliance requirement is the act of setting the outlet works once each week consistent with the Minimum Streamflows for that month as set forth in Table 2 of this measure; that is, as long as Licensee has set the outlet works once each week, Licensee shall be deemed to be in compliance with the Wilson Creek Diversion Dam Minimum Streamflow requirements of this measure.

Winter Period

The Winter Period is defined as the period from no later than November 1 of each year until the following year when Licensee is able to safely access the Wilson Creek Diversion Dam. Within

90 days of license issuance, during each Winter Period Licensee shall by no later than November 1 set the outlet works at Wilson Creek Diversion Dam to make the Minimum Streamflow release for the Wilson Creek Diversion Dam set forth in Table 2 of this measure. Licensee shall not be required to re-set the outlet works until the end of the Winter Period, at which time Licensee shall set the outlet works for the flow release for that month as set forth in Table 1 of this measure. During the Winter Period, Licensee's license compliance requirement is the act of setting the outlet works no later than November 1; that is, as long as Licensee has set the outlet works, Licensee shall be deemed to be in compliance with the Wilson Creek Diversion Dam Minimum Streamflow requirements of this measure for the Winter Period.

Part 6. Chicago Park Powerhouse Motoring

Licensee shall, from May 1 through September 15 of each year, make a good faith effort to avoid non-routine planned outages and operate the turbine/generator unit in Chicago Park Powerhouse in a synchronous condense mode when the unit is not generating electricity (i.e., "motor" the unit). If from May 1 through September 15 Licensee shuts down the Chicago Park Powerhouse for a non-routine planned outage which would cause the Dutch Flat Afterbay to spill, Licensee shall make a good faith effort to motor the powerhouse until the flows from the Dutch Flat Afterbay, consistent with Part 7 of this measure (i.e., regarding spill cessation at Dutch Flat Afterbay Dam), reach the tailrace of the Chicago Park Powerhouse.

Part 7. Milton Diversion Dam, Bowman-Spaulding Diversion Dam and Dutch Flat Afterbay Dam Spill Cessation Schedules and Minimization of Flow Fluctuations

This part pertains to spill cessation and operations at Milton Diversion Dam, Bowman-Spaulding Diversion Dam and Dutch Flat Afterbay Dam.

Licensee shall make a good faith effort to provide the target flows, measured as mean daily flow, within 10 percent of the target flows shown in Tables 4, 5, 6, 7 and 8 of this measure. However, it is recognized that some conditions (e.g., storm conditions) may result in flows outside Licensee's ability to control. The target flows are targets only, and as long as Licensee shall make a good faith effort to meet the target flows, failure to meet the target flows shall not be considered a violation of this part of the measure. The requirements in this part are not subject to a ramping rate. Licensee shall make available to SWRCB, CDFG, Forest Service, and BLM the streamflow records related to the spill cessation schedules upon request.

In years where a spill cessation schedule is implemented, for the period of time from the end of the spill cessation schedule in Tables 4, 5 and 6 through September 30, with the exception of emergencies or when otherwise required by law or directed by regulatory agencies, Licensee shall make a good faith effort to not make releases from Milton Diversion Dam and Bowman-Spaulding Diversion Dam that result in short-term, high-flow fluctuations defined as a 100 percent or greater increase in a 12-hour period in the river downstream of the dam. In non-spill cessation years, Licensee shall make a good faith effort to not make releases from Milton Diversion Dam and Bowman-Spaulding Diversion Dam that result in short-term, high flow

fluctuations as defined above in the river downstream of the dam from May 1 through September 30.

This measure does not apply in instances when Licensee is directed by the Commission or California Division of Safety of Dams to test (i.e., exercise) valves at Milton Diversion and Bowman-Spaulding Diversion dams (i.e., quickly open and close the valve). NID will make a good faith effort to schedule such inspections or outlet testing after September of each calendar year to avoid negative effects on aquatic species.

The dam spill cessation schedule requirements in this part are subject to temporary modification if required by equipment malfunction, as directed by law enforcement authorities, or in emergencies. An emergency is defined as an outage due to an event that is reasonably out of the control of Licensee and requires Licensee to take immediate action, either unilaterally or under instruction of law enforcement, emergency services, or other regulatory agency staff, including actions to prevent the imminent loss of human life or damage to property. An emergency may include, but is not limited to: natural events such as landslides, storms, or wildfires; vandalism; malfunction or failure of Project works; or other public safety incidents. If Licensee temporarily modifies the requirements of this condition, Licensee shall make all reasonable efforts to promptly resume performance of the requirements and shall notify BLM, Forest Service, SWRCB, and CDFG within 48 hours of the modification.

Licensee shall commence the dam spill cessation schedules in this part within 90 days of license issuance unless a facility modification or construction is required. Where a facility must be modified or constructed to allow compliance with the required spill cessation schedule, including flow measurement facilities, except as otherwise provided, Licensee shall submit applications for permits to modify or construct the facilities as soon as reasonably practicable but no later than 2 years after license issuance and will complete the work as soon as reasonably practicable but no later than 2 years after receiving all required permits and approvals for the work. During the period before facility modifications or construction are completed, and starting within 90 days after license issuance, Licensee shall make a good faith effort to provide the specified spill cessation schedules within the reasonable capabilities of the existing facilities.

Milton Diversion Dam

Licensee shall adhere to the Milton Diversion Dam spill cessation schedule described in Table 4 of this measure after May 1 of each calendar year, or as soon as Licensee closes the Jackson Meadows Dam spill gates, whichever comes later. The first five days of this schedule (at 300 cfs) also provide flows for recreational whitewater boating (Refer to Measure YB-RR5, Bowman-Spaulding Diversion Dam Supplemental Flows for Whitewater Boating).

Table 4. Spill cessation schedule in the Middle Yuba River downstream of Milton Diversion Dam after May 1. If the peak of the spill is greater or equal to the highest flow on the spill cessation schedule, then the spill flows will be decreased according to this schedule. If the peak of spill flow is less than the highest flow on the schedule, then the spill flows will be decreased according to the schedule from the observed flow downward. While the table shows the spill cessation schedule continuing until Target Flows are 50 cfs, each spill cessation event will stop when the Target Flow shown in the table is equal to or less than the applicable Minimum Streamflow shown in Part 2 of this measure; that is, the spill cessation event will end at the applicable Minimum Streamflow.

Number of Days to Hold Target Flow	Target Mean Daily Flow in cfs at USGS Streamflow Gage Station 11408550
6 Days	300 cfs
3 Days	225 cfs
3 Days	150 cfs
3 Days	100 cfs
3 Days	80 cfs
2 Days	60 cfs
2 Days	50 cfs

Bowman-Spaulding Diversion Dam

Licensee shall adhere to the Bowman-Spaulding Diversion Dam spill cessation schedule described in Table 5 of this measure after April 1 of each calendar year.

Table 5. Spill cessation schedule in the Canyon Creek downstream of the Bowman-Spaulding Diversion Dam after April 1. If the peak of the spill is greater or equal to the highest flow on the spill cessation schedule, then the spill flows will be decreased according to this schedule. If the peak of spill flow is less than the highest flow on the schedule, then the spill flows will be decreased according to the schedule from the observed flow downward. While the table shows the spill cessation schedule continuing until Target Flows are 45 cfs, each spill cessation event will stop when the Target Flow shown in the table is equal to or less than the applicable Minimum Streamflow shown in Part 2 of this measure; that is, the spill cessation event will end at the applicable Minimum Streamflow.

Target Number of Days to Hold Target Flow	Target Mean Daily Flow in cfs at USGS Streamflow Gage Station 11416500
1 day	275 cfs
1 day	230 cfs
1 day	200 cfs
2 days	160 cfs
2 days	130 cfs
2 days	100 cfs
2 days	85 cfs
3 days	70 cfs
3 days	55 cfs
4 days	45 cfs

Dutch Flat Afterbay Dam

License shall adhere to the Dutch Flat Afterbay Dam spill cessation schedules described in Table 6 (for spills of 3 days or less) and Table 7 (for spills of more than 3 days) between May 1 and September 30 when the Chicago Park Flume and/or Powerhouse are out of service due to either planned or unplanned/emergency outage or Licensee has restricted the capacity of the Chicago Park Flume such that it results in spilling of the Dutch Flat Afterbay. During a Chicago Park Flume and/or Powerhouse outage that results in spilling of the Dutch Flat Afterbay, Licensee

shall establish a draft of between 50 and 100 cfs from the Dutch Flat Afterbay Dam low-level outlet as high as possible depending on available water to maintain the Dutch Flat Afterbay level at or above 2,732 feet elevation, below which cavitation could cause unit reliability issues with Dutch Flat No. 2 Powerhouse. The spill cessation schedules in Table 6 and Table 7 shall begin when the Chicago Park Flume and/or Powerhouse is brought back on-line and the Dutch Flat Afterbay ceases spilling, as observed at the ogee-crest spillway at Dutch Flat Afterbay, and shall continue until the Minimum Streamflow Flow for that Water Year Type and month as shown in Table 2 of this measure is reached.

Table 6. Spill cessation schedule in the Bear River downstream of Dutch Flat Afterbay Dam for spills at Dutch Flat Afterbay lasting 3 days or less. If the peak of the licensee-caused spill is greater or equal to the highest flow on the spill cessation schedule, then the spill flows will be decreased according to this schedule. If the peak of spill flow is less than the highest flow on the schedule, then the spill flows will be decreased according to the schedule from the observed flow downward. While the table shows the spill cessation schedule continuing until Target Flows are 25 cfs, each spill cessation event will stop when the Target Flow shown in the table is equal to or less than the applicable Minimum Streamflow shown in Part 2 of this measure; that is, the spill cessation event will end at the applicable Minimum Streamflow.

Target Number of Days to Hold Target Flow	Target Mean Daily Flow in cfs at USGS Streamflow Gage Station 11421770
1 day	75 cfs
1 day	50 cfs
1 day	25 cfs

Table 7. Spill cessation schedule in the Bear River downstream of Dutch Flat Afterbay Dam for Licensee-caused spills at Dutch Flat Afterbay lasting longer than 3 days. If the peak of the Licensee-caused spill is greater or equal to the highest flow on the spill cessation schedule, then the spill flows will be decreased according to this schedule. If the peak of the Licensee-caused spill is less than the highest flow on the schedule, then the spill flows will be decreased according to the schedule from the observed flow downward. While the table shows the Licensee-caused spill cessation schedule continuing until Target Flows are 25 cfs, each spill cessation event will stop when the Target Flow shown in the table is equal to or less than the applicable Minimum Streamflow shown in Part 2 of this measure; that is, the spill cessation event will end at the applicable Minimum Streamflow.

Target Number of Days to Hold Target Flow	Target Mean Daily Flow in cfs at USGS Streamflow Gage Station 11421770
7 days	75 cfs
7 days	50 cfs
7 days	25 cfs

Part 8. Rollins Reservoir Elevation Control

Licensee shall make a good faith effort to manage the flows in the Bear River below Rollins Dam in a manner so as to match outflows with inflows when Rollins Reservoir elevation is within the top 2 to 3 feet (2,168.00 feet to 2,171.00 feet) of the reservoir. The goal of this measure is to eliminate rapid fluctuations in the Bear River below Rollins Dam. To the extent possible, Licensee shall manage the reservoir elevation within the top 2 to 3 feet of the reservoir

by adjusting the draft out of reservoir into the Bear River based on inflows to Rollins Reservoir that are above downstream water supply demand. The adjustments shall be done over a period of time so as to have the draft at maximum when Rollins Dam begins spilling. After May 1 of each calendar year, when Rollins Reservoir inflows begin to subside and Rollins Dam stops spilling, Licensee shall manage the reduction in draft in a manner so as to keep Rollins Reservoir in the top 2 to 3 foot band while also managing flow releases below Rollins Dam so that the stage (water depth) does not decrease more than 1 foot total during any 3-week period (measured at USGS gage 11422500).

The requirements of this measure are subject to temporary modification if required by equipment malfunction, as directed by law enforcement authorities, or in emergencies. An emergency is defined as an event that is reasonably out of the control of Licensee and requires Licensee to take immediate action, either unilaterally or under instruction of law enforcement, emergency services, or other regulatory agency staff, including actions to prevent the imminent loss of human life or damage to property. An emergency may include, but is not limited to: natural events such as landslides, storms, or wildfires; vandalism; malfunction or failure of Project works; or other public safety incidents.

YB-AQR2 Bowman Lake Fish Stocking

Licensee shall, beginning the first full calendar year after license issuance, each year and upon the written request of CDFG and within 60 days following the submission by CDFG to Licensee of a statement of costs subject to audit by Licensee, pay for the stocking of up to 20,000 trout fry and 25,000 kokanee fry in that fiscal year (July 1 through June 30) by CDFG in Bowman Lake. The cost to Licensee of such trout and kokanee fry stocking in Bowman Lake shall not exceed the then-prevailing statewide average cost to CDFG, without mark-up, for the production and stocking of trout fry and kokanee fry in similar reservoirs. CDFG at its sole discretion may change the number, species and size of fish stocked in Bowman Lake in any one year, but Licensee shall only be responsible to reimburse CDFG for the costs that would have been incurred if CDFG stocked trout and kokanee fry at the levels described above.

YB-AQR3 Rollins Reservoir Fish Stocking

Licensee shall, beginning the first full calendar year after license issuance, each year and upon the written request of CDFG and within 60 days following the submission by CDFG to Licensee of a statement of costs subject to audit by Licensee, pay for the stocking of up to 10,000 catchable rainbow trout, 10,000 catchable brown trout, and 25,000 kokanee fry in that fiscal year (July 1 through June 30) by CDFG in Rollins Reservoir. The cost to Licensee for such trout and kokanee fry stocking in Rollins Reservoir shall not exceed the then-prevailing statewide average cost to CDFG without mark-up for the production and stocking of trout and kokanee fry in similar reservoirs. CDFG at its sole discretion may change the number, species and size of fish stocked in Rollins Reservoir in any one year, but Licensee shall only be responsible to reimburse CDFG for the costs that would have been incurred if CDFG stocked trout and kokanee fry at the levels described above.

YB-AQR4 Steephollow Creek Foothill Yellow-Legged Frog Monitoring

Licensee shall, beginning in the first full calendar year after license issuance, monitor foothill-yellow-legged frogs (FYLF) in Steephollow Creek from the confluence with the Bear River for a distance of 1,000 meters upstream. The purpose of the monitoring is to assess if spills from the Chicago Park Conduit result in adverse effects on the FYLF population in Steephollow Creek and, if necessary, to facilitate the development of mitigation measures. Baseline monitoring shall occur in the first full calendar year following license issuance and be repeated in the second and third full calendar years following license issuance.

Event-based monitoring shall occur beginning the second full calendar year after a spill event, and will be repeated in the third year following that spill event. When the results of the two years of monitoring are known, Licensee shall consult with BLM, CDFG and SWRCB as to the need for a third year of monitoring. A Chicago Park Conduit spill event that requires monitoring is defined as:

- A spill of more than 100 cfs between April 1 and June 15; or
- A spill of more than 300 cfs between June 16 and September 15

Licensee shall notify BLM, CDFG and SWRCB within two business days of any spill event occurring between April 1 and September 15. Spill events between September 16 and March 31 do not qualify as spill events that require monitoring.

FYLF monitoring shall occur for 1,000 meters of Steephollow creek (i.e., beginning at the confluence with the Bear River) and will consist of a tally of each FYLF life stage detection, recording locations of egg masses with a hand held global positioning system (GPS) device, and photo-documenting Baseline monitoring and event based monitoring will be comprised of four surveys: the first two in spring (typically May) focusing on adults and egg masses, the third at least one month later focusing on tadpoles, and the fourth in late summer/fall focusing on metamorphosed juveniles. Licensee's methods shall follow the methods for visual encounter surveys and data analysis described in Licensee's relicensing 2011 Special-Status Amphibians – Foothill Yellow-Legged Frog Surveys Technical Memorandum (Appendix E12 in Exhibit E of Licensee's April 2011 Final License Application), except that collection of habitat data for FYLF detections will not be necessary.

In years in which monitoring occurs, Licensee shall prepare a report summarizing the monitoring. The report shall include the results of the monitoring, including a description of the spill event (i.e., flow, duration and reason for spill event) if the monitoring was triggered by a spill event, and shall compare the conditions in the creek to those conditions in the creek documented by past monitoring. The report shall include any Licensee recommendations to mitigate observed adverse effects. The report shall be provided to BLM, CDFG and SWRCB by December 31 and shall be discussed at the annual consultation meeting (Measure YB-GEN1).

YB-AQR5 Implement Canal Fish Rescue Plan

Licensee shall, within 1 year of license issuance, implement the Canal Fish Rescue Plan included in Licensee's application for new license as approved by the Commission.

YB-AQR6 Milton-Bowman Conduit Fish Entrainment

Licensee shall, beginning the first full calendar year after license issuance, monitor fish entrainment into the Milton-Bowman Conduit from April 15 through August 15 by placing a net or nets into the conduit. Sampling shall occur each week for a 96-hour continuous period, to begin on a randomly selected day each week. Sampling each week may be reduced to a 48-hour continuous period, to be randomly selected, if five of fewer fish were collected in the previous week. All collected fish will be identified to species, and the length, weight and condition of each collected fish will be recorded. The time of day (e.g., day or night) and flow in the conduit when the fish were collected will also be recorded. Any live fish collected in the nets will be placed in the Middle Yuba River immediately downstream of the Milton Diversion Dam.

Given the highly variable snow conditions that occur in the vicinity of Milton Diversion Dam (elevation 5,600 ft), including the potential for ongoing snow storms during April and May, there may be weather-related safety and sampling issues that could preclude an April 15 start date. Licensee shall be prepared to begin sampling with snow on the ground and will make a good faith effort to begin on April 15, but the amount of snowpack and storms could limit an actual start date to sometime after April 15.

By December 31 following the fieldwork, Licensee shall prepare a report on the study including objectives, methods, results (data are to be reported day/night sampling and an estimate of total number of fish entrained by species based on a volumetric analysis shall be included in the report), Licensee's recommended resource measures including the design of a fish screen if Licensee proposes to install a fish screen, and a schedule of implementation for any License proposed measures, and shall provide a draft of the final report to the Forest Service, CDFG and SWRCB for review and approval. Licensee shall file the report, including evidence of consultation and the reason why any agency proposed measures were not adopted, with the Commission and shall implement those measures required by the Commission.

YB-AQR7 Rollins Dam Large Woody Material Management

Licensee shall, in October of each year, relocate the large woody material that has accumulated on the upstream side of Rollins Dam spillway log boom to the downstream side of the log boom. Licensee shall allow the large woody material between the log boom and spillway to pass over the spillway when the reservoir spills. This measure does not require that Licensee gather large woody material and deposit it near the log boom, or modify Rollins Reservoir operations to facilitate the passage of large woody material over the spillway.

YB-AQR8 Fall Creek Diversion Dam Minimum Streamflows

This measure applies to Minimum Streamflows in Fall Creek downstream of Fall Creek Diversion Dam. Water Year Types, Minimum Streamflows, including provisions for temporary modifications to Minimum Streamflows, and canal outages in this measure shall have the same meaning as "Water Year Types," "Minimum Streamflows" and canal outages as set forth in Parts 1, 2 and 3, respectively, of Measure YB-AQR1, *Streamflows*.

Except as otherwise provided, Licensee shall implement Minimum Streamflows shown in Table 1 of the measure within 90 days of license issuance unless a facility modification or construction is necessary. Where a facility must be modified or constructed to allow compliance with the required Minimum Streamflows, including flow measurement facilities, except as otherwise provided, Licensee shall submit applications for permits to modify or construct the facility as soon as reasonably practicable but no later than 2 years after license issuance and will complete the work as soon as reasonably practicable but no later than 2 years after receiving all required permits and approvals for the work. During the period before facility modifications or construction are completed, and starting within 90 days after license issuance, Licensee shall make a good faith effort to provide the specified Minimum Streamflows within the reasonable capabilities of the existing facilities.

Table 1. Minimum Streamflows in cubic feet per second (cfs) for the Fall Creek Diversion Dam by month and Water Year Type.

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
FALL CREEK – BELOW FALL CREEK DIVERSION DAM (COMPLIANCE POINT: NEW STREAMFLOW GAGE TO BE CONSTRUCTED)						
October	1	1	2	3	4 or In = Out[1]	4 or In = Out[1]
November	1	1	2	3	4 or In = Out[1]	4 or In = Out[1]
December	1	1	2	3	4 or In = Out[1]	4 or In = Out[1]
January	1	1	2	3	4 or In = Out[1]	4 or In = Out[1]
February	1	1	2	3	4	4
March	1	1	2	3	4	4
April	1	1	2	3	4	4
May	12.5 or In = Out[1]	12.5 or In = Out[1]	15 or In = Out[1]	20 or In = Out[1]	20 or In = Out[1]	20 or In = Out[1]
June	5 or In = Out[1]	5 or In = Out[1]	6 or In = Out[1]	7 or In = Out[1]	8 or In = Out[1]	9 or In = Out[1]
July	1	1	2	3	4	4
August	1	1	2	3	4	4
September	1	1	2	3	4	4

[1] In=Out means inflow to the Fall Creek Diversion Dam pool equals outflow from the Fall Creek Diversion Dam. The Minimum Streamflow requirement shall be the specified flow or inflow to the Fall Creek Diversion dam pool, whichever is less.

During outages of the Bowman-Spaulding Conduit that affect Minimum Streamflows in Fall Creek as described in Table 1 of this measure, flow in Fall Creek downstream of the Fall Creek Diversion Dam shall equal flow in Fall Creek upstream of the Fall Creek Diversion Dam. Licensee shall comply with this requirement by not diverting any water from Fall Creek into the Bowman-Spaulding Conduit during the outage (i.e., monitoring streamflow upstream in Fall Creek upstream of Fall Creek during the outage shall not be required).

YB-AQR9 Minimum Streamflows Compliance Measurement

For the purpose of documenting compliance with the Minimum Streamflow requirements in Measure YB-AQR1, *Streamflows*, and Measure YB-AQR8, *Fall Creek Diversion Dam Minimum Streamflows*, Licensee shall measure streamflows at the locations listed in Table 1 of this measure. Compliance flow data collected by Licensee from the streamflow gages shall be reviewed by Licensee's hydrographers as part of its quality assurance/quality control (QA/QC) protocol. Upon completion of the QA/QC process, for active USGS gages, Licensee shall catalogue the data and make them available to USGS in annual hydrology summary reports. Licensee understands that USGS will then perform an independent QA/QC review of the data and subsequently publish the data and post it within USGS's electronic database that can be accessed via Internet and hard copy formats. Licensee shall make Licensee-recorded instantaneous flow data available to the Forest Service, BLM, SWRCB and CDFG upon request.

Table 1. Minimum Streamflow compliance monitoring locations for the Yuba-Bear Hydroelectric Project.

Location	USGS Gage No.	Licensee Gage No.	Gage Name	Location (Latitude and Longitude)		Elevation (ft)
Middle Yuba River – Below Jackson Meadows Dam	11407815	YB-301	Middle Yuba River Controlled Release at Jackson Meadows Dam, Near Sierra City, CA	39°30'36"	120°33'15"	5,800
Middle Yuba River – Below Milton Diversion Dam	11408550	YB-304	Middle Yuba River Below Milton Dam, Near Sierra City, CA	39°31'19"	120°34'57"	5,690
Jackson Creek – Below Jackson Dam	11414700	YB-312	Jackson Creek Below Jackson Lake, Near Sierra City, CA	39°27'53"	120°33'46"	6,570
Canyon Creek – Below French Dam	11414410	YB-306	Canyon Creek Below French Lake, Near Cisco, CA	39°25'16"	120°32'30"	6,590
Canyon Creek – Below Faucherie Dam	11414450	YB-308	Canyon Creek Below Faucherie Lake, Near Cisco, CA	39°25'46"	120°34'06"	6,080
Canyon Creek – Below Sawmill Dam	11414470	YB-310	Canyon Creek Below Sawmill Lake, Near Graniteville, CA	39°26'44"	120°36'05"	5,790
Canyon Creek – Below Bowman-Spaulding Diversion Dam	11416500	YB-315	Canyon Creek Below Bowman Lake, CA	39°26'23"	120°39'37"	5,300
Texas Creek – Below Texas Creek Diversion Dam	--	Proposed YB-317	--	39°21'20"[1]	120°39'52"[1]	5,400[1]
Clear Creek – Below Bowman-Spaulding Diversion Conduit	--	Proposed YB-318	--	39°22'51"[1]	120°40'52"[1]	5,350[1]
Fall Creek – Below Fall Creek Diversion Dam	--	Proposed YB-319	--	39°22'51"[1]	120°40'52"[1]	5,350[1]
Trap Creek – Below Bowman-Spaulding Diversion Conduit	--	Proposed YB-320	--	39°21'57"[1]	120°40'48"[1]	5,350[1]
Rucker Creek – Below Rucker Creek Diversion Gate	--	Proposed YB-321	--	39°24'17"[1]	120°40'32"[1]	5,300[1]
Bear River – Below Dutch Flat Afterbay Dam	11421770	YB-197	Bear River Below Dutch Flat Afterbay Near Dutch Flat, CA	39°12'49"	120°50'39"	2,600
Bear River – Below Rollins Dam	11422500	YB-196	Bear River Below Rollins Dam Near Cisco, CA	39°08'3"	120°57'11"	1,975

[1] This is an estimate of where the proposed gage will be located.

All of the above gages are existing streamflow gages, with the exception of the proposed gages YB-317, YB-318, YB-319, YB-320 and YB-321, which Licensee shall install and maintain for the purpose of monitoring compliance with Minimum Streamflows. In addition, USGS gages 11414410, 1414450 and 11414470 rated to measure up to 2.6 cfs, and Licensee shall improve those gages to monitor compliance with Licensee's proposed Minimum Streamflows in Measure YB-AQR1.

Licensee shall, within 90 days of license issuance, commence monitoring at the gages listed in Table 1 of this measure, with the exception of gages USGS gages 11414410, 1414450 and 11414470 and proposed gages YB-317, YB-318, YB-319, YB-320 and YB-321. For these eight gages, within 1 year after license issuance, Licensee shall submit applications to the appropriate agencies for permits to construct or upgrade and rate each of these gages. Licensee shall complete such construction and rating as soon as reasonably practicable but no later than 2 years after receipt of all required permits and approvals for the gages. Within 90 days of the time that gage construction and rating is complete, Licensee shall commence monitoring at the gage to document compliance with Minimum Streamflows. During the period from 90 days after the license issuance until such time as monitoring begins at the gage, Licensee shall make a good faith effort to monitor flow for compliance purposes.

2.5 Terrestrial Resources

YB-TR1 Implement Non-Native Invasive Plant Management Plan[29]

Licensee shall, within 1 year of license issuance, implement the Non-Native Invasive Plant Management Plan included in Licensee's application for new license as approved by the Commission.

YB-TR2 Implement Vegetation Management Plan on Federal Land[30]

Licensee shall, within 1 year of license issuance, implement the Vegetation Management Plan included in Licensee's application for new license as approved by the Commission.

YB-TR3 Bowman-Spaulding Transmission Line Avian Protection

Licensee shall, beginning in the first full calendar year after license issuance, record annually all incidental observations by Licensee's operations staff of bird collisions/electrocutions at the Bowman-Spaulding Transmission Line. The reported incidental observations shall include the following information: 1) date of observation; 2) location of observation (i.e., nearest pole number); 3) species, if identifiable; 4) number of birds; 5) condition of bird(s) (i.e., dead or injured); 6) suspected cause of injury or death (i.e., electrocution or collision); and 7) was the

[29] NID's Amended *Non-Native Invasive Plant Management Plan* is included in Amended Appendix E4 of the Amended Application. The plan, which was called the *Invasive Species Management Plan on Federal Land*, was included in the FLA and has been amended for inclusion in the Amended Appendix E4.

[30] NID's Amended *Vegetation Management Plan* is included in Amended Appendix E4 of the Amended Application. The plan was included in the FLA and has been amended for inclusion in the Amended Appendix E4.

bird banded and, if so, band number. Licensee shall provide this information for each year to the Forest Service, USFWS and CDFG at least 60 days prior to the annual meeting (Measure YB-GEN1).

Licensee shall consult with the Forest Service, USFWS and CDFG concerning measures needed to ensure the protection of birds where incidental observations of bird collisions/electrocutions illustrate a problem pole or transmission structure. Measures may include retrofit or replacement of problem poles or transmission structure in accordance with the guidelines presented in *Avian Protection Plan (APP) Guidelines* (APLIC and USFWS 2005) which are intended to be used in conjunction with *APLIC's Suggested Practices for Raptor Protection on Power Lines: State of the Art in 1996* and *Mitigating Bird Collisions with Power Lines: The state of the Art in 1996*, or the most current edition of these documents. Additionally, when replacement of existing non-problematic poles or transmission structures is deemed necessary by Licensee (i.e., the pole or transmission structure has reached the end of its useful life), Licensee shall replace the poles or structures in conformance to the documents cited above.

YB-TR4 Consult When Replacing Canal Wildlife Escape Facilities and Wildlife Crossing Facilities

Prior to replacing or retrofitting existing wildlife escape facilities and wildlife crossings along Project canals, Licensee shall consult with CDFG regarding specifications and design and with the Forest Service or BLM, as appropriate. Licensee shall file the design, including evidence of consultation, with the Commission within 60 days after the wildlife escape facility or wildlife crossing facility has been replaced or retrofitted. Licensee shall also assess existing wildlife escape facilities and wildlife crossing facilities annually to ensure they are functional and in proper working order. Inspections shall occur at the same time other types of maintenance activities or canal assessments are being conducted.

YB-TR5 Monitor Animal Losses in Project Canals

Beginning in the first full calendar year after license issuance, Licensee shall record animal losses in all Project canals. Specifically, Licensee's operators, who conduct daily operations on Project canals, shall record in log books all dead animals observed on canal trash racks and otherwise in the canal using the Wildlife Mortality data sheets found in Appendix 4-2A of the Wildlife Movement Technical Memorandum (4-2) included in Appendix E12 of Licensees application for new license. Licensee shall make a good faith effort to record the location of the dead animal (i.e. which Project canal and where in the canal the dead animal was found and associated structure), species, date and time of the observation, suspected cause of death if it can be determined from visual observation only, photograph if available, estimated size, estimated age, and sex if known, and other pertinent information. The information will include the cumulative years and preceding year's mortality by canal segment, and a map showing segments (defined by location of trash racks). Licensee shall provide this information to CDFG, Forest Service, and BLM, as appropriate, if the canal is on public land administered by BLM, and to the Commission at least 60 days prior to the annual consultation meeting described in Measure YB-GEN-1.

If there is an increasing trend in wildlife mortalities in a canal, additional measures to address suspected Project-related causes for that canal may be developed by Licensee in consultation with CDFG, Forest Service and BLM, if appropriate. Licensee consultation with agencies regarding any canal shall be triggered when more than five wildlife_mortalities are reported for the canal in the preceding calendar year.

YB-TR6 Bat Management

In the first full calendar year after license issuance, Licensee shall document all known bat roosts within Project buildings (e.g., powerhouses, storage buildings valve houses), dams, or other structures that may be used as a roosting structure. The results of the inspection will be provided to CDFG, and to the Forest Service if the facility is located on NFS land or to BLM if the facility is on public land administered by BLM, at least 90 days prior to the annual consultation meeting (described in Measure YB-GEN-1) that follows collection of the information. If bats or signs of roosting are present where staff have a routine presence (i.e., at least daily or weekly), Licensee will attempt, where feasible, and in the calendar year following the annual consultation meeting described above, to place humane exclusion devices to prevent occupation of the structure by bats. Humane exclusion devices will be placed when bats are absent from the facility, generally between November 1 and February 28. Prior to installation of the humane exclusion devices, Licensee shall perform an inspection of the facility to ensure that overwintering bats are not trapped. If overwintering bats are present during the inspection, installation of humane exclusion measures shall be delayed. Licensee shall notify CDFG, Forest Service or BLM of the overwintering bats. Licensee shall consult with the CDFG, Forest Service or BLM during the annual consultation meeting described in Measure YB-GEN1 to identify future dates that would be suitable for installation of humane exclusion devices. All exclusion devices will be inspected on an annual basis and the facility will be reevaluated for roosting bats every 3 years after the initial exclusion devices are installed to insure that no new roosts or entry points have been established.

YB-TR7 Implement Bald Eagle Management Plan

Licensee shall, within 1 year of license issuance, implement the Bald Eagle Management Plan included in Licensee's application for new license, as approved by the Commission.

2.6 ESA-Listed Threatened and Endangered Species

NID's proposed Project does not include measures specifically related to species listed as threatened or endangered or critical habitat listed under the ESA.

2.7 Recreation Resources

YB-RR1 Implement Recreation Facilities Plan[31]

Licensee shall, within 1 year of license issuance, implement the Recreation Facilities Plan included in Licensee's application for new license as approved by the Commission.

YB-RR2 Provide Recreation Flow Information

Beginning as soon as reasonably feasible but no later than 1 year after license issuance, Licensee shall make the following mean daily streamflow information, as measured in cfs, available to the public from May 1 through November 30 of each year:

- Reservoir Storage
  - Jackson Meadows Reservoir
  - French Lake
  - Faucherie Lake
  - Sawmill Lake
  - Jackson Lake
  - Bowman Lake
  - Rollins Lake

- Streamflow
  - Middle Yuba River below Milton Diversion Dam
  - Canyon Creek below Bowman Dam
  - Bear River below Rollins Dam

Where existing streamflow gages do not measure a full range of flows, Licensee shall make a good faith effort to estimate the flow. The flow information shall be available to the public via the Internet, which may be accomplished through a third party. The flow information protocols may be modified upon mutual agreement of Licensee, responsive stakeholders and approval by the Commission.

YB-RR3 French Dam Supplemental Flows for Whitewater Boating

Licensee shall, beginning in the first full calendar year after license issuance, provide in all water year types a Recreational Streamflow in Canyon Creek below French Dam starting between September 1 and September 30 of each year, until the date that French Lake elevation reaches 6,638 feet (corresponding to a useable storage of approximately 7,500 acre-feet). For the purpose of this measure, a Recreational Streamflow is defined as a target streamflow of between 120 cfs and 150 cfs over a continuous 24-hour period as measured at gage YB-306.

[31] NID's proposed *Amended Recreation Facilities Plan* is included in Amended Appendix E4 of the Amended Application. The plan was included in the FLA and has been amended for inclusion in the Amended Appendix E4.

Licensee shall make a good faith effort to provide flows within 15 percent of the target flows.

Licensee shall make a good faith effort to provide a 7-day advance notice to the public of the beginning and ending date of each Recreation Streamflow Event via the same system Licensee uses to provide recreation streamflow information to the public (Measure YB-RR2). Licensee's notification for the Recreation Streamflow Events shall be as accurate as reasonably feasible, recognizing that streamflows cannot be guaranteed and are subject to change.

The Recreational Streamflow requirements are subject to temporary modification if required by equipment malfunction, as directed by law enforcement authorities, or in emergencies. An emergency is defined as an event that is reasonably out of the control of Licensee and requires Licensee to take immediate action, either unilaterally or under instruction by law enforcement, emergency services or other regulatory agency staff, to prevent imminent loss of human life or damage to property. An emergency may include, but is not limited to, natural events such as landslides, storms or wildfires, vandalism, malfunction or failure of Project works, or other public safety incidences.

The Recreational Streamflow requirements are also subject to modification if required by non-routine maintenance projects on French Dam that might require an earlier drawdown than in September to accomplish the project.

If Licensee temporarily modifies the requirements of this condition, then Licensee shall make all reasonable efforts to promptly resume performance of such requirements.

YB-RR4 Milton Diversion Dam Supplemental Flows for Whitewater Boating

Licensee shall, beginning in the first full calendar year after license issuance, provide Recreational Streamflow Events in the Middle Yuba River downstream of Milton Diversion Dam in any years in which spill at Milton Diversion Dam, as measured at USGS's streamflow gaging station 11408550, is 300 cfs or greater after May 1. For the purpose of this measure, a Recreational Streamflow Event in the Middle Yuba River downstream of Milton Diversion Dam is defined as a continuous mean daily target streamflow of 300 cfs for at least 6 continuous days as measured at gage 11408550 after May 1.

Licensee shall make a good faith effort to provide flows within 10 percent of the target flows. However, it is recognized that some flow conditions (e.g., storm conditions) may be outside Licensee's ability to control during spring runoff.

Licensee shall make a good faith effort to provide a 7-day advance notice to the public of the beginning and ending date of each Recreation Streamflow Event via the same system Licensee uses to provide recreation streamflow information to the public (Measure YB-RR2). Licensee's notification for the Recreation Streamflow Events shall be as accurate as reasonably feasible, recognizing that streamflows cannot be guaranteed and are subject to change.

The Recreational Streamflow requirements are subject to temporary modification if required by equipment malfunction, as directed by law enforcement authorities, or in emergencies. An emergency is defined as an event that is reasonably out of the control of Licensee and requires Licensee to take immediate action, either unilaterally or under instruction of law enforcement, emergency services, or other regulatory agency staff, including actions to prevent the imminent loss of human life or damage to property. An emergency may include, but is not limited to: natural events such as landslides, storms, or wildfires; vandalism; malfunction or failure of Project works; or other public safety incidents.

If Licensee temporarily modifies the requirements of this condition, then Licensee shall make all reasonable efforts to promptly resume performance of such requirements.

YB-RR5 Bowman-Spaulding Diversion Dam Supplemental Flows for Whitewater Boating

Licensee shall, beginning in the first full calendar year after license issuance, provide Recreational Streamflow Events in Canyon Creek downstream of the Bowman-Spaulding Diversion Dam in any years in which flow as measured at USGS's streamflow gaging station 11416500 is 275 cfs or greater. For the purpose of this measure, a Recreational Streamflow Event is defined as a continuous mean daily target streamflow of 275 cfs for at least 5 continuous days as measured at gage 11416500 after April 1.

Licensee shall make a good faith effort to provide flows within 10 percent of the target flows. However, it is recognized that some flow conditions (e.g., storm conditions) may be outside Licensee's ability to control during spring runoff.

Licensee shall make a good faith effort to provide a 7-day advance notice to the public of the beginning and ending date of each Recreation Streamflow Event via the same system Licensee uses to provide recreation streamflow information to the public (Measure YB-RR2). Licensee's notification for the Recreation Streamflow Events shall be as accurate as reasonably feasible, recognizing that streamflows cannot be guaranteed and are subject to change.

The Recreational Streamflow requirements are subject to temporary modification if required by equipment malfunction, as directed by law enforcement authorities, or in emergencies. An emergency is defined as an event that is reasonably out of the control of Licensee and requires Licensee to take immediate action, either unilaterally or under instruction of law enforcement, emergency services, or other regulatory agency staff, including actions to prevent the imminent loss of human life or damage to property. An emergency may include, but is not limited to: natural events such as landslides, storms, or wildfires; vandalism; malfunction or failure of Project works; or other public safety incidents.

If Licensee temporarily modifies the requirements of this condition, then Licensee shall make all reasonable efforts to promptly resume performance of such requirements.

2.8 Land Use

YB-LU1 Implement Transportation Management Plan[32]

Licensee shall, within 1 year of license issuance, implement the Transportation Management Plan included in Licensee's application for new license as approved by the Commission.

YB-LU2 Fire Prevention and Response Plan on Federal Land[33]

Licensee shall, within 1 year of license issuance, implement the Fire Prevention and Response Plan included in Licensee's application for new license as approved by the Commission.

2.9 Cultural Resources

YB-CR1 Implement Historic Properties Management Plan[34]

Licensee shall, within 1 year of license issuance, implement the Historic Properties Management Plan included in Licensee's application for new license as approved by the Commission.

2.10 Aesthetic Resources

YB-AER1 Implement Visual Resource Management Plan on Federal Land[35]

Licensee shall, within 1 year of license issuance, implement the Visual Resource Management Plan included in Licensee's application for new license as approved by the Commission.

2.11 Socio-economic Resources

NID's proposed Project does not include measures specifically related to socio-economic resources.

2.12 Air Quality

NID's proposed Project does not include measures specifically related to air resources.

[32] NID's *Amended Transportation Management Plan* is included in Amended Appendix E4 of the Amended Application. The plan was included in the FLA and has been amended for inclusion in the Amended Appendix E4.
[33] NID's proposed *Fire Prevention and Response Plan* is included in Amended Appendix E4 of the FLA. The plan has not been changed from the plan in the FLA.
[34] NID's proposed *Historic Properties Management Plan* is considered Privileged and is included in Volume IV of the FLA. The plan has not been changed from the plan in the FLA.
[35] NID's *Amended Visual Resource Management Plan* is included in Amended Appendix E4 of the Amended Application. The plan was included in the FLA and has been amended for inclusion in the Amended Appendix E4.

2.13 Noise

NID's proposed Project does not include measures specifically related to noise.

Page Left Blank

AMENDED APPENDIX E4

NID's Proposed Implementation Plans Included in the Proposed Yuba-Bear Hydroelectric Project

On April 15, 2011, Nevada Irrigation District (NID) filed with the Federal Energy Regulatory Commission (FERC or Commission) an Application for License for a Major Project - Existing Dam for NID's Yuba-Bear Hydroelectric Project, Project 2266 (Project).

In the FLA, Appendix 4, *NID's Proposed Implementation Plans Included in the Proposed Yuba-Bear Hydroelectric Project*, to Exhibit E included seven implementation plans for the Yuba-Bear Hydroelectric Project. The plans included:

- Clear and Trap Creeks Stabilization Plans (Proposed Measure YB-G&S3)
- Invasive Species Management Plan on Federal Land (Proposed Measure YB-TR1)
- Vegetation Management Plan on Federal Land (Proposed Measure YB-TR2)
- Recreation Facilities Plan (Proposed Measure YB-RR1)
- Transportation Management Plan (Proposed Measure YB-LU1)
- Fire Prevention and Response Plan on Federal Land (Proposed Measure YB-LU2)
- Visual Resource Management Plan on Federal Land (Proposed Measure YB-AER1)

An eighth implementation plan, Historic Properties Management Plan (Proposed Measure YB-CR-1) was not included in Appendix E4 because it contained Privileged information. The Historic Properties Management Plan was included in Volume IV of the FLA.

In conformance with 18 CFR § 5.27, NID files with FERC this Amended Appendix 4, *NID's Proposed Implementation Plans Included in the Proposed Yuba-Bear Hydroelectric Project*, to Exhibit E as part of NID's Amended Application for NID's Yuba-Bear Hydroelectric Project.

This Amended Appendix E4 fully replaces Appendix E4 in the FLA, and contains the following nine implementation plans:

- Included in NID's FLA and Included with No Changes in this Amended Appendix E4 (i.e., unchanged):
  - Clear and Trap Creeks Stabilization Plans (Proposed Measure YB-G&S3)

- Included in NID's FLA and Modified for Inclusion in this Amended Appendix E4 (i.e., modified):
  - Fire Prevention and Response Plan on Federal Land (Proposed Measure YB-LU2)
  - Transportation Management Plan (Proposed Measure YB-LU1)
  - Non-Native Invasive Plant Management Plan (Proposed Measure YB-TR1)
  - Vegetation Management Plan (Proposed Measure YB-TR2)

- Recreation Facilities Plan (Proposed Measure YB-RR1)
- Visual Resource Management Plan (Proposed Measure YB-AER1)

- Not Included in NID's FLA (i.e., new):
  - Canal Fish Rescue Plan (Proposed Measure YB-AQR5)
  - Bald Eagle Management Plan (Proposed Measure YB-TR7)

This Amended Appendix E4 does not affect NID's proposed Historic Properties Management Plan (Proposed Measure YB-CR-1) contained in Volume IV of the FLA.

Application for a New License
Major Project – Existing Dam

Clear and Trap Creeks Channel Stabilization Plan

Yuba-Bear Hydroelectric Project
FERC Project No. 2266-096

Prepared by:
Nevada Irrigation District
1036 West Main Street
Grass Valley, CA 95945
www.nidwater.com

April 2011

Table of Contents

List of Tables

List of Figures

List of Attachments

Page Left Blank

1.0 Introduction

This implementation plan (Plan) summarizes the findings of and provides treatment recommendations based on phase one of a three-phase study of stream channel incision and subsequent bank erosion and failure for Clear Creek and Trap Creek below where they are crossed by the Bowman-Spaulding Canal, and for an overflow water Wasteway between the two creeks (the "Christmas Tree Wasteway") (Attachment A: Figure A1). Stream channel incision and subsequent sedimentation caused by canal release flows and overspill are potential environmental concerns because of lost fish habitat and increased erosion and sedimentation in Fall Creek and the South Yuba River. Preliminary alternative channel stabilization measures and cost opinions are presented herein.

This first phase of this study, reported herein, has consisted of a background study, a preliminary flow analysis, and development of conceptual channel stabilization measure designs. The geographic boundaries of each study reach were defined, existing information and data were compiled, existing field reconnaissance data were summarized and additional data needs for the second phase of the study were identified. The second phase study will include filling the identified data gaps, analyzing stream hydraulics and slope stability, and developing channel stabilization measures. The final phase study will include development of design alternatives and estimated costs.

The initial field reconnaissance shows that the measures needed to stabilize Clear Creek and Christmas Tree Wasteway are minimal relative to those needed for Trap Creek. Most of the study effort will be focused on the unstable portion of Trap Creek below the Bowman-Spaulding canal.

2.0 Plan Goals

- The first goal of this plan is to assess the steps needed to stabilize two stream channels and one spill channel directly downstream of the Bowman-Spaulding Canal
- The second goal of this plan is to develop preliminary conceptual design alternatives
- The third goal of this plan is to develop preliminary implementation cost opinions by alternative

3.0 Background

3.1 Geology and Soils

Mesozoic granitic rocks (grMz) form the majority of the exposed bedrock within the study area. In the upper watershed there are also Jurassic and Triassic metavolcanic rocks and Paleozoic marine rocks. In the middle watershed Glacial deposits (Qg) are exposed. Minor artificial fill is locally present adjacent to forest roadways, parking areas, equipment staging areas, and constructed improvements including the Bowman-Spaulding Canal. The geomorphic expression of the Qg deposits is relatively gentle topography with natural slope gradients from two to 30

percent. The drainage network has a correspondingly low gradient, and field observations indicate that the active stream channels are in dynamic equilibrium or meta-stable. Erosive deflation of the Qg deposits in the impacted (eroded) stream channels has left a cobble and boulder substrate of a size that far exceeds the effective bedload transport capacity of the active stream.

The principal mapped soil units within the study area are the Huysink-Horseshoe complex soils (HSE = 2 to 30 percent slope and HSF = 30 to 50 percent slope) and the Rock outcrop-Deadwood association (DDH = 50 to 100 percent slope). The HSE and HSF units are part of the Qg deposits and consist of well-drained soils underlain by stratified sand and gravel. The Qg deposits within the study area are generally a mix of rounded cobbles and boulders that are matrix-supported by a gravelly loam. The matrix is weak and susceptible to erosion with a moderate to high erosion hazard rating.

3.2 Climate and Hydrology

The study area is in a Mediterranean climate zone with hot dry summers and cold wet winters. The average maximum air temperature is 61 F, and the average minimum temperature is 34 F. Most of the precipitation falls as snow between October and April, and the average annual precipitation is about 69 inches. High intensity, long duration snow storms are common during the fall and winter. Intense rainfall occurs occasionally during the summer as a result of thunderstorms.

The study area is located in the Upper Yuba Subbasin (HUC4 - 18020125) within the South Yuba River. Trap Creek (TC), Clear Creek (CC), and Christmas Tree Wasteway (CTWW) are hydrologically connected to Fall Creek (Attachment A: Figure A-1). Boundaries of the studied sub-watersheds were delineated using USGS watershed data supplemented by Digital Elevation Model (DEM) data. The watershed hierarchy was based on the two sub-watersheds TC and CC (Attachment A: Figure A-2 and Table 1). The CTWW does not have a catchment upslope of the canal, and canal release flows are conveyed through a narrow eroded channel to Clear Creek (Attachment A: Figure A-2).

Table 1. Study Area Catchments and Drainage Areas.

Catchment Name	ID	Drainage Area (acres)
Clear Creek	CC	1308
Lower Clear Creek	LCC	217
Christmas Tree Wasteway	CTWW	8
Trap Creek	TC	870
Lower Trap Creek	LTC	220

The TC and CC sub-watersheds terminate at Fall Creek and have catchments upslope of the canal (Attachment A: Figure A-1). All flow from the drainages above the canal is diverted in the canal, and for most of the year the stream channels above the canal are hydrologically disconnected from the channels below the canal (Rose et al. 1996). The drainage areas below the canal were subdivided into the Lower Trap Creek (LTC) and Lower Clear Creek (LCC) catchments (Attachment A: Figure A-2).

TC is naturally an intermittent stream with a bankfull discharge of about 10 cfs. The 100-year peak discharge upstream of the canal, calculated using the modified Rational Equation, is likely about 80 cfs. The LTC stream channel downstream of the canal is about 6,950 feet (Attachment A: Figure A-3) and becomes perennial about 800 feet below the canal (Rose et al. 1996). The upper two thirds of this reach has enlarged and destabilized as a result of large pulses of water released from the spill gate. The stream channel is larger, the peak discharge is greater, and the streambed substrate is coarser than the upstream reaches (Rose et al. 1996) (Figure 1).

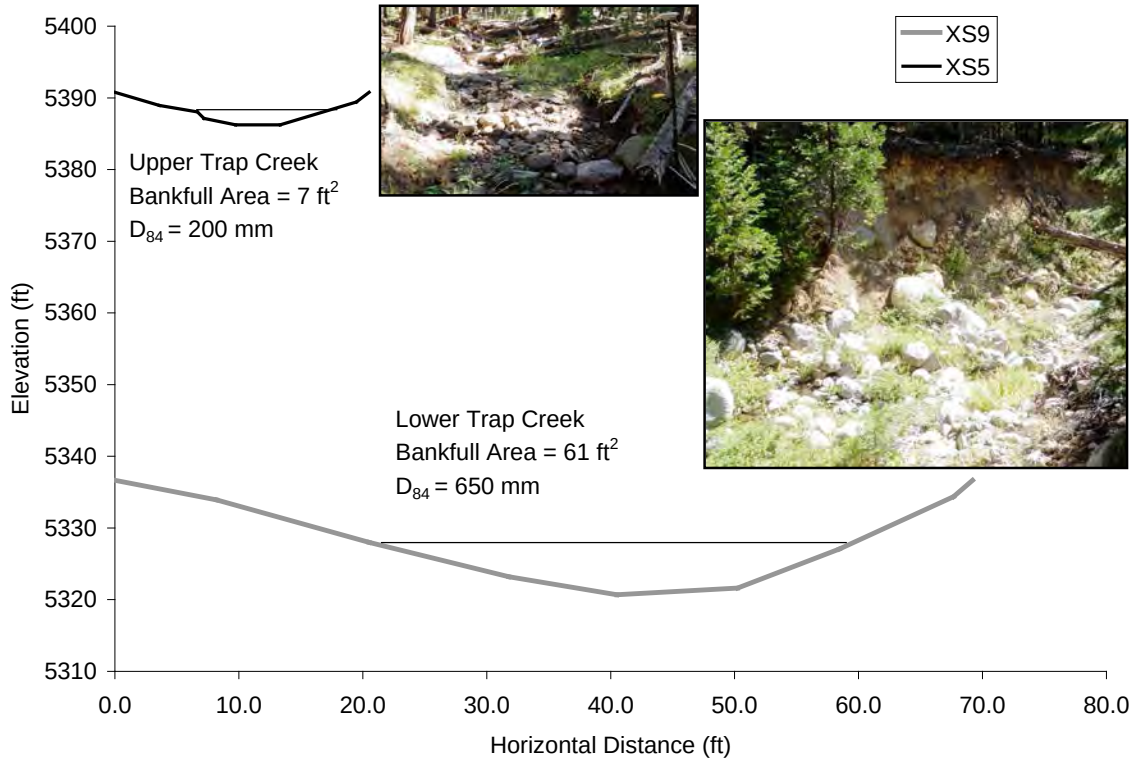


Figure 1. Representative upper and lower Trap Creek stream channel cross-sections showing bankfull stage, area, and D_{84} particle size. Channel geometry and substrate data from Rose et al. 1996.

CC is an intermittent stream with a bankfull discharge of about 25 cfs and a 100-year peak discharge of about 220 cfs upstream of the canal (Attachment A: Figure A-2). The LCC stream channel immediately downstream of the canal has destabilized as a result of large pulses of water released from the canal spill gate. The unstable portion is about a quarter of the reach between the canal and the Fall Creek confluence. The downstream channel is slightly larger, but there is no measurable difference in the substrate grading upstream to downstream (Rose et al. 1996) (Figure 2).

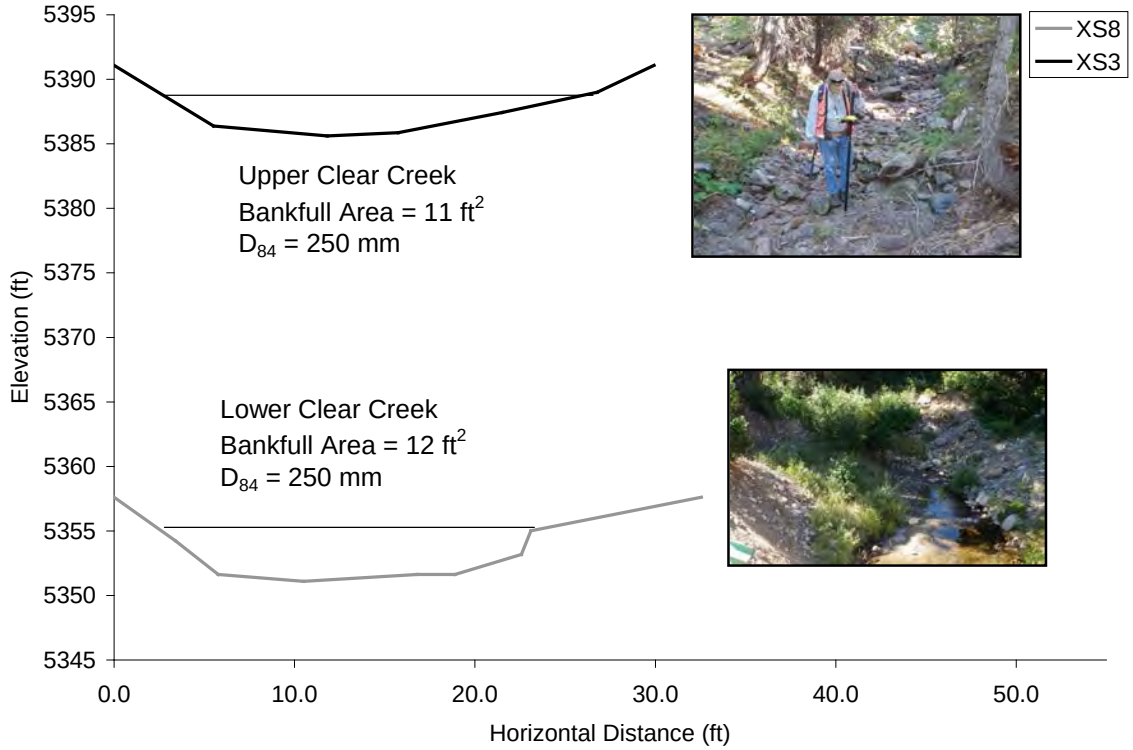


Figure 2. Representative upper and lower Clear Creek stream channel cross-sections showing bankfull stage, area, and D_{84} particle size. Channel geometry and substrate data from Rose et al. 1996.

The CTWW channel was created by canal release flow and is entrenched into soil and glacial till. It is a steep gully channel with a capacity of about 75 cfs. The downstream extent of channel instability is unknown as of this report especially where CTWW confluences with Clear Creek.

3.3 Identified Resource Damage

Stream channel instability, stream bank failure, and erosion downslope of the canal are the identified problems causing resource damage. Canal flow releases have destabilized the natural stream channels of LTC and LCC. The releases have also incised a gully into the hillslope below the canal at CTWW.

4.0 Methods

4.1 Phase 1 - Background Study

HDR conducted a background study to summarize existing information and identify unstable stream reaches and potential treatment sites requiring stabilization measures using a combination of topographic maps, geology and soils maps, aerial photographs, and a project GIS. The results of the background analysis were used to provide preliminary conceptual designs for channel

stabilization measures. The surface field study included a summary of existing topographic data, survey data, geologic data and soils data, plus historical aerial photograph data, and a field reconnaissance for collection of updated photographs and surface data.

4.2 Phase 2 - Detailed Study

Attachment B lists the data needs for second study phase. To assess the horizontal and vertical extent of channel scour and to assess slope stability, unstable features will be field mapped. The results of this mapping will be used to plan the topographic survey and soil sampling schemes. The Phase 2 study was subdivided into Phase 2a and Phase 2b design steps.

The exposed coarse material will be classified using the Unified Rock Classification System (Williamson, D.A., 1984), and the exposed fine material will be classified using the Unified Soil Classification System A.S.T.M. method D-2487-10). Stream channel cross-sections and slope transects will be surveyed and geo-referenced. The surveys will be completed using a total station or auto-level, and survey control points will be referenced using a RTK GPS unit. Soil test pits will be located systematically along the study reach at locations identified for treatment as part of the detailed channel mapping. Bedrock/soil mapping and soil test results will be used to characterize the spatial distribution of material types and design channel stabilization measures.

This sampling scheme is intended to assess the horizontal and vertical distribution of earth materials near the ground surface. Within the sampling area, the test pit locations not accessible by heavy equipment will be excavated using a shovel or auger. Where possible, an excavator will be used to dig test pits. For each test pit, the depth, soil color, particle size and volume, relative density, particle angularity and shape, moisture content, strength, cohesion, and compaction of the soil will be visually noted or measured using field methods described in USDA (1994) and BOR (2001). It should be noted that, other than pit depth, these field-measured soil characteristics are not quantitative. Representative samples will be taken from the test pits and sent to a materials testing laboratory for analysis, as described below.

The channel scour potential will be assessed using standard methods (Cruden and Varnes 1996, BOR 2001, and USDA 1994). The stream channel, geology, soil data, materials test results (e.g., shear tests), and survey data will used to analyze the scour potential. The upper bank slope stability will be analyzed using the Bishop Method of Slices (Cruden and Varnes 1996).

Additional characterization of the topography, geology, soil, and groundwater is critical to an accurate assessment of slope stability within the study area. The samples collected in the field from the test pits will be tested using various methods, including (variously) particle size determination, moisture/density determination, maximum density determination, and direct shear. Additional tests may include large particle size determination, freeze/thaw of rip rap, specific gravity of rip rap, Los Angeles abrasion of rip rap, soundness of rip rap, alkali-silica reactivity of rip rap, and sieve analysis of aggregate. The test results will be used in development and refinement of channel stabilization designs.

The lack of information and data available to characterize and quantify the hydraulic and scour conditions in the LCC and LTC channels during a spill event limits the accuracy of first study phase construction time and cost estimates. As part of the second study phase, HDR is going to attempt to have a team of geologists observe and measure an actual flow release the winter or spring of 2011. Given the difficulty in forecasting when enough runoff will occur to trigger a maximum discharge canal release, the magnitude and duration of the observed release may be less than the design flows.

5.0 Results –Background Study

5.1 Background Study Limitations

The background study results are based on, and are limited by the available data. The design stream flow magnitude and duration and corresponding unit hydrograph are based on provided Bowman-Spaulding Canal flow data (NID 2010). No flow data are available for the study reaches downstream of the canal. The conceptual channel and upper stream bank stabilization alternatives presented herein are based on 5 meter DEM topographic data, on channel survey data from 1995 (Rose et al. 1996), and on interpretation of aerial photographs. It is likely that the channel cross-section geometry has changed since 1995. The exact magnitude and extent of channel and upper bank instability are unknown at this time. The second study phase is critical and will be used to refine the preliminary channel stabilization measure designs and cost opinions presented below.

5.2 Bowman-Spaulding Canal Release Scenarios

During the winter months, flow through the canal system is decreased in anticipation of large storms and increased tributary runoff from Texas Creek, Clear Creek, Fall Creek, Trap Creek, and Rucker Creek. Typically, NID reduces the flow at the Bowman-Spaulding Canal (BSC) headgate in advance of a large storm event (Figure 3 and Figure 4). The canal retains side flow from each of the tributaries listed above and is generally full at the bottom of the system just above Lake Spaulding. During flooding, excess runoff within the study area is spilled over hardened weirs and spill gates are opened at LCC, CTWW, and LTC.

Other than CTWW, the spill gates are located just upstream of the tributary confluence with the canal. When NID bypasses one or both of the tributaries downstream into the natural channel, they are not sending the natural tributary flow into the downstream reaches; rather they are sending the canal water downstream and replacing it with tributary water.

There is a general operational sequence of events that occurs in the Bowman-Spaulding Canal when triggered by a large storm event (Morrow, personal communication, 2010). This sequence may vary depending on the storm intensity and ambient conditions leading up to runoff. For a typical winter flood event the following sequence occurs:

1. Canal flows increase as a result of snowmelt and/or rainfall runoff.
2. NID reduces flow at the head of the canal and allows tributary side flow to enter the canal.
3. NID prevents water from entering the BSC at Fall Creek Diversion by opening the Fall Creek Dump Gate and closing the inlet to the Fall Creek Flume.
4. Unregulated flow that exceeds canal capacity is then diverted to the downstream reaches of, Trap Creek via the spill gate to protect the BSC below Trap Creek Diversion from overtopping.
5. Canal flow spills over hardened weirs.
6. NID opens additional spill gates (Clear Creek and Rucker Creek).
7. Canal stage drops and hardened weirs stop spilling.
8. Potentially, snowmelt continues and all gates are at maximum capacity for some duration of time.
9. Alternatively, snowmelt subsides and canal flows return to normal.
10. Gates are closed and the spills recede.

This release scenario can be seen in the historical flow records for the canal and spill gates. Figure 3 shows the hydrographs for four gages during the New Year's 1997 flood event. The unimpaired flood hydrographs of Clear Creek and Trap Creek above the canal are flashy with a short time of concentration ranging on the order of minutes (Figure 3 and Figure 4).

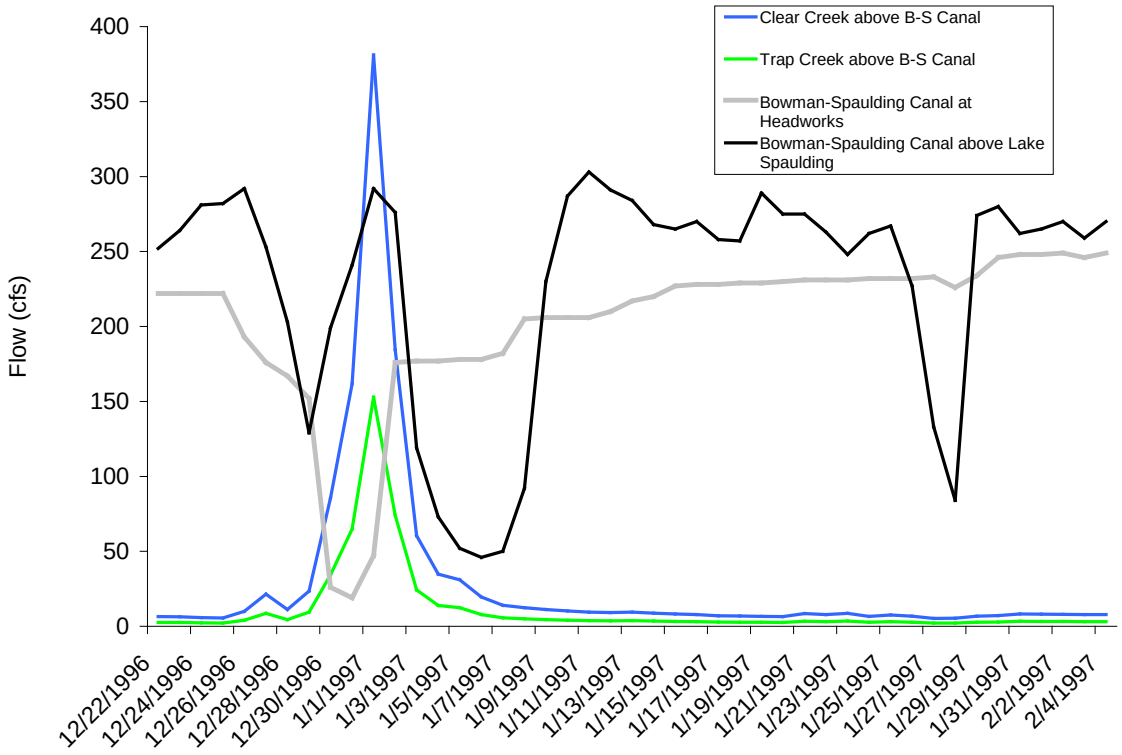


Figure 3. Measured hydrographs for the New Year's 1997 flood event.

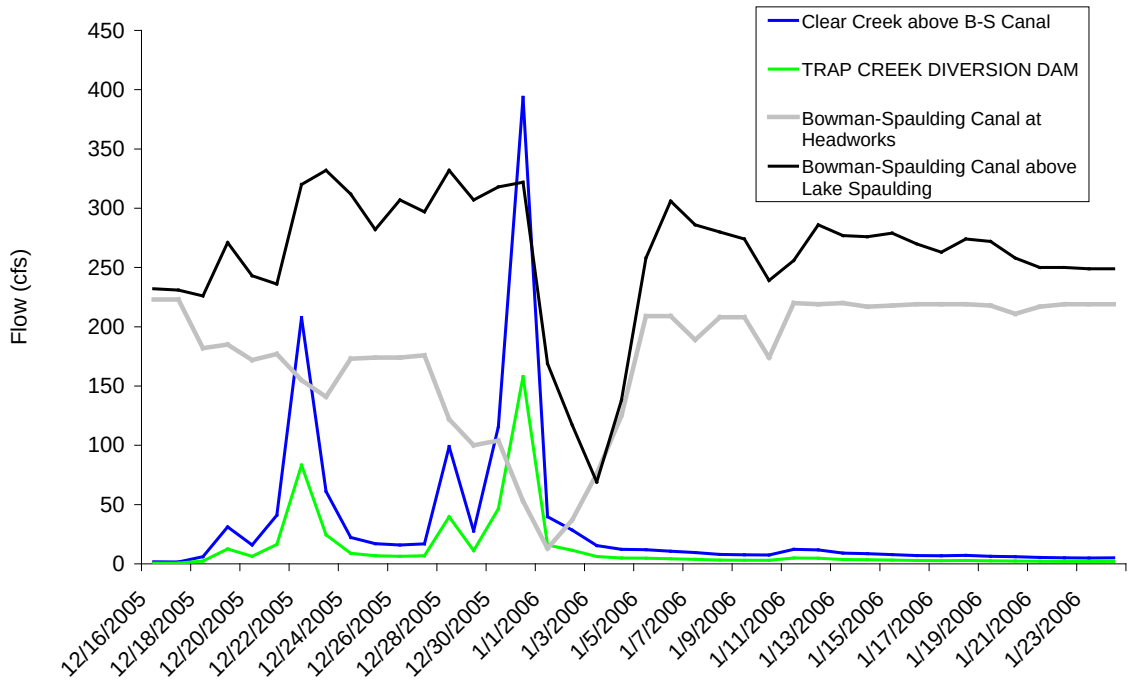


Figure 4. Measured hydrographs for the New Year's 2006 flood event.

5.3 Design Storm

Given the uncertainty in the peak discharge and total volume of flow into the downstream reaches of LCC, for this study it was assumed that the maximum peak discharge would be 250 cfs for a duration of 5-days. For CTWW, a flow rate of 75 cfs for a duration of 3-days was assumed. The CTWW shorter duration is based on the presumption that this release will be shut off once Clear Creek and Trap Creed are open. For LTC, a maximum peak discharge of 350 cfs for a duration of 5-days and a bulking factor were applied.

The background study results indicate that the LTC channel has had episodic debris flow events that caused reach-wide valley-scale erosion. Therefore, a flow bulking factor of 2 was applied to the LTC design flow to account for the debris in the assumed flow events (U.S. Army Corps of Engineers, 1992). The LTC stream network has been scoured by episodic debris flow events initiated from upstream upper bank slope failures. The bulking factor accounts for the increased flow and scour caused by a debris flow traveling down the LTC channel. The flow gains mass by entraining sediment from the stream banks and channel bottom.

In this study phase the shape of the measured hydrographs were used to develop unit hydrographs for the design floods. The unit hydrograph shape followed the measured hydrograph for a large flood event on the Bowman-Spaulding Canal above Lake Spaulding (Figure 3). Stage-discharge curves from the downstream reaches were then used to predict total flow volume and vertical and lateral scour potential.

5.4 Study Reach Problem Description

5.4.1 Clear Creek

Between the confluence of CC and Fall Creek (River Post (RP) 0.0) and where the canal crosses CC (RP 6938) the drainage of CC was divided into sub-reaches for study purposes (Attachment A: Figure A-2). A longitudinal profile of this reach was created from 5-meter DEM topographic data (InterMap, IFSAR DTM data). Between RP 0.0 and RP 2416, the average slope is 48 percent. Upstream of RP 2416, the slope decreases to about 10 percent on average. Like Trap Creek, it appears that channel incision is resulting from large pulse flows from the canal that likely coincided with large flood events.

5.4.2 Trap Creek

The reach between the confluence of TC and Fall Creek (RP 0.0) and the stream-canal crossing (RP 6938) was divided into sub-reaches for study purposes (Attachment A: Figure A-3).

A longitudinal profile of this reach was created from 5-meter DEM data (Figure 5). Between RP 0.0 and RP 2416, the average slope is 48 percent (Attachment A: Figure A-3). Upstream of RP 2416, the slope decreases to about 10 percent on average. The slope break does not correspond with the mapped geologic contact between the Qg and grMz (Figure 5 and Attachment A, Figure

A-3). However, the break is near the contact between the DDH and SHF soil map units. There are no visibly active slope failures below RP 4517 on the 1987 through 2005 aerial photographs.

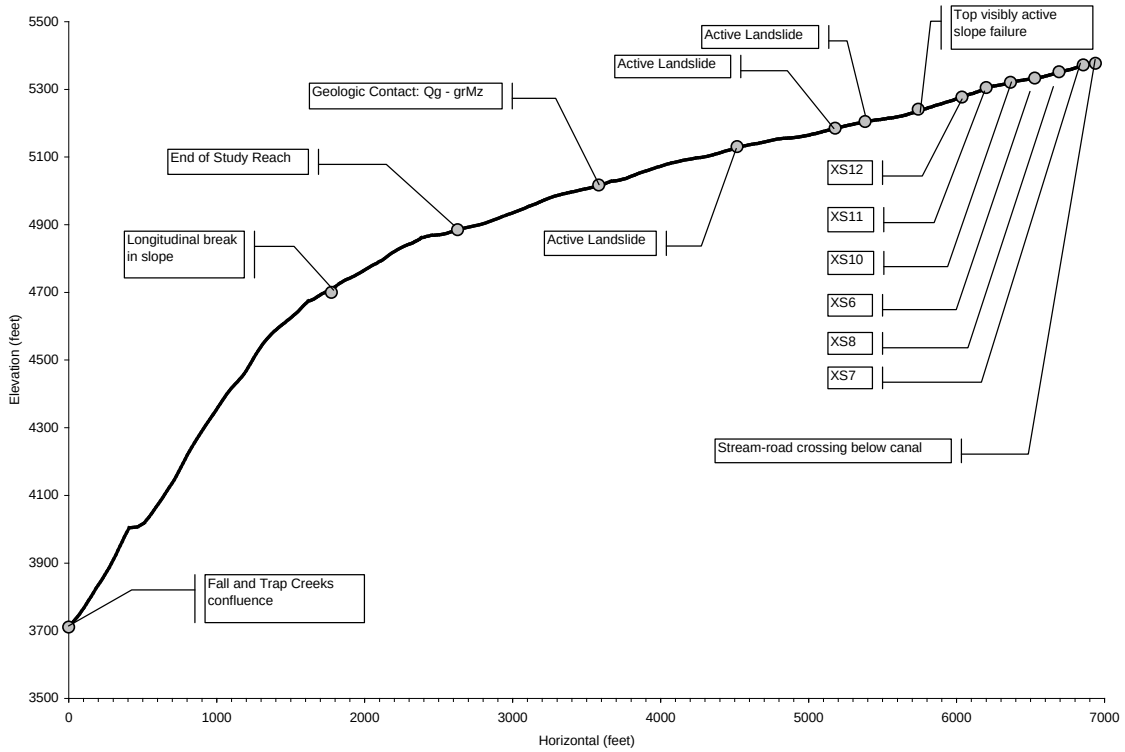


Figure 5. Study reach longitudinal profile showing RP points.

Analysis of these data indicates that the lower reach of TC has destabilized as a result of large release flows from the canal and from the scour of erodible upper and lower stream banks. The unstable reach of Trap Creek extends at least 3,400 feet downstream of the canal crossing. Historic aerial photograph comparison results indicate that the channel was unstable prior to 1987. The reach above RP 5118 appears less active in recent photographs (1987 versus 2005); however, the downstream extent of incision appears to have increased since 1987. On the 2005 aerial photograph, there is a visibly active slope failure at RP 4517 that is not present on the previous photographs. Using the photographic evidence, it appears that channel incision has migrated about 600 feet downstream since 1987.

It appears that channel incision is resulting from canal release flows that likely coincided with large flood events. For example, historic aerial photographs from 1993 and 1998 show that the channel was more active in 1998. These two photos bracket the regional flood of 1996.

6.0 Phase 1 Proposed Alternative Measures

The first study phase considered several alternative channel and slope stabilization measures.

The channel stabilization alternatives include:

1. Widen Channel
2. Rock Gabion Channel
3. Rip-rap Grade Control
4. Concrete Channelization

The alternative measures for slope stabilization for Trap Creek* include:

1. Modified Geometry
2. Rip-rap Buttress
3. Soil Nails
4. Horizontal Drains
5. Combination of 1 – 4

*= select Factor of Safety range (1.0 – 1.4)

6.1 Clear Creek

The conceptual channel stabilization measures are shown in Attachment A, Figure A-4. The goals for each conceptual measure are listed in Table 2 immediately below.

Table 2. Clear Creek Conceptual Channel Stabilization Measures and Goals.

Conceptual Measures	Goals			
	Reduce Stream Gradient	Increase Stream Roughness	Prevent vertical and lateral scour	Stabilize Banks
Grade Control Structures	X		X	
Stream bank armoring		X	X	X
Large Woody Debris Placement		X		X

6.1.1 Conceptual Measures Design Specifications

6.1.1.1 Clear Creek Stream Channel and Banks

Maximum Peak Discharge = 350 cfs
Maximum Peak Discharge Duration = 5 days

Maximum Peak Discharge Design Channel
- Design Channel Width = 20.5 feet
- Design Channel Depth = 3 feet
- Design Channel Area = 39 square feet
- Design Channel Slope = 3 %
- Design Channel Roughness (n) = 0.12
- Design Channel Average Velocity = 3.5 feet per second

6.2 Christmas Tree Wasteway

The conceptual channel stabilization measures for the Christmas Tree Wasteway are shown in Attachment A: Figure A-5. The goals for each measure are listed in Table 3 below.

Table 3. Christmas Tree Wasteway Conceptual Channel Stabilization Measures and Goals.

Conceptual Measures	Goals			
	Reduce Stream Gradient	Increase Stream Roughness	Prevent vertical and lateral scour	Stabilize Banks
Grade Control Structures	X		X	
Stream bank armoring		X	X	X
Large Woody Debris Placement		X		X

6.2.1 Conceptual Measures Design Specifications

6.2.1.1 Christmas Tree Wasteway Stream Channel and Banks

Maximum Peak Discharge = 75 cfs
Maximum Peak Discharge Duration = 3 days

Maximum Peak Discharge Design Channel

- Design Channel Width = unknown
- Design Channel Depth = unknown
- Design Channel Area = unknown
- Design Channel Slope = unknown
- Design Channel Roughness (n) = unknown
- Design Channel Average Velocity = unknown

6.3 Trap Creek

The conceptual channel stabilization measures are shown in Attachment A: Figure A-6. The goals for each conceptual measure are listed in Table 4 below. Cross-sectional depictions of the various measures are shown in Attachment A: Figure A-7 and Figure A-8.

Table 4. Trap Creek Channel Stabilization Measures and Goals.

Conceptual Measures	Goals			
	Reduce Stream Gradient	Increase Stream Roughness	Prevent vertical and lateral scour	Stabilize upper stream banks
Grade Control Structures	X		X	
V-notch Weirs	X		X	
Stream bank armoring		X	X	X
Rip-rap Abutment Walls			X	X
Large Woody Debris Placement		X		

6.3.1 Conceptual Measures Design Specifications

6.3.1.1 Trap Creek Stream Channel and Banks

Maximum Peak Discharge = 350 cfs
Maximum Peak Discharge Duration = 5 days

Maximum Peak Discharge Bulking Factor = 2 (sediment concentration 50 percent by volume)
Trap Creek Bulked Maximum Peak Discharge = 700 cfs

Maximum Peak Discharge Design Channel

- Design Channel Width = 27 feet
- Design Channel Depth = 4 feet
- Design Channel Area = 68 square feet
- Design Channel Slope = 10 percent
- Design Channel Roughness (n) = 0.14
- Design Channel Average Velocity = 6 feet per second

Bulked Maximum Peak Discharge Design Channel

- Design Channel Width = 31 feet
- Design Channel Depth = 5.1 feet
- Design Channel Area = 100 square feet
- Design Channel Slope = 10 percent
- Design Channel Roughness (n) = 0.14
- Design Channel Average Velocity = 12 feet per second

6.3.1.2 Trap Creek Unstable Upper Stream Banks

Slope Stability Design Factor of Safety (F) = 1.2

Slope Stability Design Parameters and Assumptions

- Minimum of 10 slices per landslide
- Assumed soil types = Silty Gravel with Sand (GC-GM) and Silty clayey Gravel (GM)
- GC-GM unit weight = 96 lbs/ft^3
- GM unit weight = 121 lbs/ft^3
- GC-GM cohensionless soils (c = 0 lbs/ft^2)
- GM cohesion c = 104 lbs/ft^2

- Assumed angle of internal friction ϕ = 28 degrees
- Circular slip plane with a radius proportional to slope dimensions
- Assume tension cracks at head of landslide
- Landslide toe is along the lower stream bank and channel bottom
- Shallow groundwater near toe and along lower slide surface
- Toe of landslide forms lower stream bank and is within the design channel area

7.0 Phase 1 Cost Opinion

Based on the Phase 1 background study results, it will cost approximately $2.7 million to implement the channel stabilization treatment measures. Project management is projected to cost about $180,000. The Phase 2 Channel Stabilization Design will cost about $260,000, and the planning and permitting will cost about $85,000. The actual construction and material costs are about $2.2 million for Trap Creek, $68,500 for Clear Creek, and $47,400 for the Christmas Tree Waste Way.

8.0 Phase 1 Conceptual Implementation Plans

8.1 Clear Creek Implementation Plan

8.1.1 Conceptual Channel Stabilization Construction Sequence

Table 5 below summarizes the recommended conceptual construction sequence.

Table 5. Clear Creek Conceptual Channel Stabilization Construction Sequence.

1	Gain equipment access along channel
2	Start measures at RP 4200 and work upstream
3	Excavate channel and stream banks
4	Waste spoil material outside of channel in flat areas.
5	Import rip-rap
6	Construct GCS[1], and SBA[2] per specifications
7	Re-vegetate
8	Place LWD[3] in channel
9	Repeat 3 - 8 by RP treatment site per specifications
10	Re-vegetate roads and work areas

[1] GCS = Grade Control Structures
[2] SBA = Stream Bank Armoring
[3] LWD = Large Woody Debris Placement

8.1.2 Conceptual Channel Stabilization Measures

The following table presents the conceptual channel stabilization measure sites by RP.

Table 6. Clear Creek Conceptual Channel Stabilization Measures.

RP[1]	Treatment Types	Description
4207	GCS	The exact location of the beginning of the treatment reach is unknown at this time
4292	GCS	Exact location unknown
4373	GCS	Exact location unknown
4375 - 4455	SBA and LWD	Need to survey
4456	GCS	Exact location unknown
4457 - 4466	SBA and LWD	Need to survey
4467	GCS	Exact location unknown
4468 - 4509	SBA and LWD	Need to survey
4510	GCS	Exact location unknown
4516	Road crossing	Upgrade and mitigate erosion

[1] RP = River Post, see Attachment A: Figure A-4

8.2 Christmas Tree Wasteway Implementation Plan

8.2.1 Channel Stabilization Conceptual Construction Sequence

Table 7 below summarizes the conceptual construction sequence.

Table 7. Christmas Tree Wasteway Conceptual Construction Sequence.

1	Gain equipment access along channel
2	Start measures at RP 0.0 and work upstream
3	Excavate channel and stream banks
4	Waste spoil material outside of channel in flat areas.
5	Import rip-rap and gunite
6	Construct GCS and SBA per specifications
7	Apply gunite to rip-rap
8	Re-vegetate
9	Repeat 3 - 8 by RP treatment site per specifications
10	Re-vegetate roads and work areas

[1] GCS = Grade Control Structures
[2] SBA = Stream Bank Armoring
[3] LWD = Large Woody Debris Placement \

8.2.2 Conceptual Channel Stabilization Measures

The conceptual channel stabilization measures by RP are presented in Table 8 below.

Table 8. Christmas Tree Wasteway Conceptual Channel Stabilization Measures.

RP	Treatment Types	Description
0 - 70	GCS and SBA	Construct rip-rap grade control and scour control apron
70 - 360	GCS	Construct rip-rap grade control

[1] RP = River Post, see Attachment A: Figure A-5
[2] GCS = Grade Control Structures
[3] SBA = Stream Bank Armoring
[4] LWD = Large Woody Debris Placement

8.3 Trap Creek Implementation Plan

8.3.1 Conceptual Channel Stabilization Construction Sequence

The conceptual construction sequence for measures along Trap Creek are presented in Table 9 below.

Table 9. Conceptual Trap Creek Channel Stabilization Construction Sequence.

1	Grub vegetation along road ways (new and existing)
2	Upgrade existing roads
3	Build new roads
4	Start measures at RP[1] 4217 and work upstream
5	Excavate channel and unstable bank
6	Haul spoil material
7	Import rip-rap
8	Construct RRAW, GCS, VNW, and SBA per specifications
9	Excavate trench and drain landslide
10	Install geogrid and re-vegetate
11	Place LWD in channel
12	Repeat 5 - 11 by RP treatment site per specifications
13	Obliterate roads
14	Re-vegetate roads and work areas

[1] RP = River Post
[2] GCS = Grade Control Structures
[3] SBA = Stream Bank Armoring
[4] LWD = Large Woody Debris Placement

8.3.2 Channel Stabilization Measures Sites by River Post

The conceptual channel stabilization measures sites by RP are presented in Table 10 below.

Table 10. Trap Creek Channel Stabilization Measures Sites by RP.

RP[1]	Treatment Types	Description
4217	Unknown	The exact location of the beginning of the treatment reach is unknown at this time.
4250	VNW[2]	On downstream side of landslide
4500	VNW	Ties into rip-rap abutment wall
4517	RRAW[3], GCS[4], SBA[5], and LWD[6]	Landslide on right upper stream bank.
4658	VNW	On upstream side of landslide
4799 – 5180	SBA and LWD	300-400 ft reach downstream of landslides.
5195	VNW	On downstream side of landslide
5382	RRAW, GCS, SBA, and LWD	Landslide on right upper stream bank.
5450	VNW	Ties into rip-rap abutment wall
5611	VNW	On downstream side of landslide
5742	RRAW, GCS, VNW, SBA, and LWD	Landslide on right upper stream bank.
5774	Road	Possible road access point
5876	VNW	On upstream side of landslide
6000 – 6260	SBA and LWD	250-300 ft reach upstream of landslides
6268	VNW	On downstream side of landslide
6364	RRAW, GCS, SBA, and LWD	Landslide on right upper stream bank.
6518	VNW	On upstream side of landslide
6633	RRAW, GCS, SBA, and LWD	Landslide on right upper stream bank.

Table 10. (continued)

RP[1]	Treatment Types	Description
6763	VNW	On upstream side of landslide
6765 – 6850	SBA and LWD	Short reach between v-notch weirs
6852	VNW	Below canal road crossing
6855 – 6935	SBA and LWD	Short reach between v-notch weirs
6938	Road	Canal road crossing with culvert

[1] RP = River Post, see Attachment A: Figure A-6, Figure A-7, and Figure A-8
[2] VNW = V-Notch Weirs
[3] RRAW = Rip-rap abutment walls
[4] GCS = Grade Control Structures
[5] SBA = Stream Bank Armoring
[6] LWD = Large Woody Debris Placement

9.0 Phase 2 Detailed Study Cost Estimate

The second study phase includes data collection, design analysis, design drawings, and reporting. Table 11 summarizes the costs associated with completing the second phase. The Phase 2 study was subdivided into Phase 2a and Phase 2b design steps. Table 12 summarizes the Phase 2a tasks and costs.

Table 11. Phase 2 study tasks and costs.

TASK 1 - FIELD WORK	
Task 1a - Extent of Unstable Channel Mapping	$ 8,200
Task 1b - Channel Morphology Surveys	$ 8,100
Task 1c - Channel Substrate Sampling	$ 6,100
Task 1d - Unstable Stream Bank Surveys	$ 7,200
Task 1e - Unstable Stream Bank Sampling	$ 6,100
Task 1f - Canal Release Observations	$ 14,000
Task 1 Total =	$ 49,700
TASK 2 - DESIGN ANALYSES	
Task 2a - Channel Scour	$ 24,800
Task 2b - Unstable Banks	$ 24,800
Task 2 Total =	$ 49,600
TASK 3 - DESIGN MEASURES AND COSTS	
Task 3a - Channel Scour	$ 11,000
Task 3b - Unstable Banks	$ 11,000
Task 3 Total =	$ 22,000
TASK 4 - DESIGN DRAWINGS	
Task 4a - Channel Scour	$ 23,200
Task 4b - Unstable Banks	$ 23,200
Task 4 Total =	$ 46,400
TASK 5 - TECHNICAL REPORT	
Task 5a - Draft Report	$ 13,300
Task 5b - Respond to Comments	$ 8,800
Task 5c - Finalize Report	$ 12,800
Task 5 Total =	$ 34,900
Grand Total =	**$ 202,600**

Table 11. (continued)

EXPENSES	
1. Lodging	$ 5,200
2. Rental Car	$ -
3. Mileage (personal vehicle)	$ 6,000
4. Meals/day	$ 1,600
5. Airfare	$ -
6. Miscellaneous (plotting and printing)	$ 2,500
7. Soil Testing Costs	$ 37,900
Grand Total =	**$ 53,200**
EQUIPMENT RENTAL	
Survey Equipment	$ 1,250
Trimble GPS with External Antenna	$ 400
RTK GPS	$ 1,875
Soil Sampling Equipment	$ 475
Grand Total =	**$ 4,000**
TOTAL ESTIMATED PHASE 2 STUDY COSTS	**$ 259,800**

Table 12. Phase 2a study tasks and costs.

TASK 1 - FIELD WORK	
Task 1a - Extent of Unstable Channel Mapping	$ 8,318
Task 1b - Channel Morphology Surveys/Substrate	$ 6,798
Task 1c - Channel Substrate Sampling (hold)	$ -
Task 1d - Unstable Stream Bank Surveys/Sampling	$ 6,600
Task 1e - Unstable Stream Bank Sampling (hold)	$ -
Task 1f - Canal Release Observations	$ 10,839
Task 1 Total =	$ 32,555
TASK 2 - DESIGN ANALYSES	
Task 2a - Treatment Reach Refinement	$ 4,929
Task 2b - Treatment Alternative Refinement	$ 6,179
Task 2c - Technical Report	$ 5,238
Task 2 Total =	$ 16,346
Grand Total =	**$ 48,901**
EXPENSES	
1. Lodging	$ 3,900
2. Rental Car	$ -
3. Mileage (personal vehicle)	$ 4,000
4. Meals/day	$ 1,200
5. Airfare	$ -
6. Miscellaneous (plotting and printing)	$ 1,250
7. Soil Testing Costs	$ 15,000
Grand Total =	**$ 25,350**
EQUIPMENT RENTAL	
Survey Equipment	$ 625
Trimble GPS with External Antenna	$ 360
RTK GPS	$ 1,875
Soil Sampling Equipment	$ 475
Grand Total =	**$ 3,335**
TOTAL ESTIMATED COSTS	**$ 77,586**

10.0 Implementation Schedule

The schedule for performing such work will be within five years of License issuance and FERC approval of the Plan.

11.0 References Cited

Cruden, D.M., and Varnes, D.J., 1996. Landslide types and processes. Pages 36-75 in A.K. Turner and R.L. Schuster, editors. Landslides Investigation and Mitigation. National Research Council Transportation Research Board Special Report 247, National Academy Press, Washington, DC.

Marrow, B., 2010. Personal communication regarding canal release scenarios.

Nevada Irrigation District (NID), 2010. Bowman-Spaulding Canal flow data and unimpaired synthetic hydrograph data for Clear and Trap Creek.

Rose, T.L., Erman, N.A., and Erman, D.C., 1996. Impacts of the Bowman-Spaulding Canal on Four Sierran Streams: an Ecological and Geomorphological Evaluation. University of California, Davis, Challenge Cost Share Agreement, USDA Forest Service File Code 2610.

United States Army Corps of Engineers (USACE), 1960, The Unified Soil Classification System: U.S. Army Technical Memorandum 3-357.

_____. 1992. Streams above the line: channel morphology and flood control. Corps of Engineers Workshop on Steep Streams. Miscellaneous paper: HL-94-4.

United States Bureau of Reclamation (BOR), 2001. Engineering Geology Field Manual, Second Edition, Volume I.

United States Department of Agriculture Forest Service (USDA), 1994. Slope Stability Reference Guide for National Forests in the United States, Volume 1. Engineering Staff Washington DC, EM-7170-13.

Williamson, D.A., 1984, Unified Rock Classification System: Bulletin of the Association of Engineering Geologists, Vol. XXI, No. 3, p. 345-354.

Page Left Blank

ATTACHMENT A

Study Area Maps

Page Left Blank

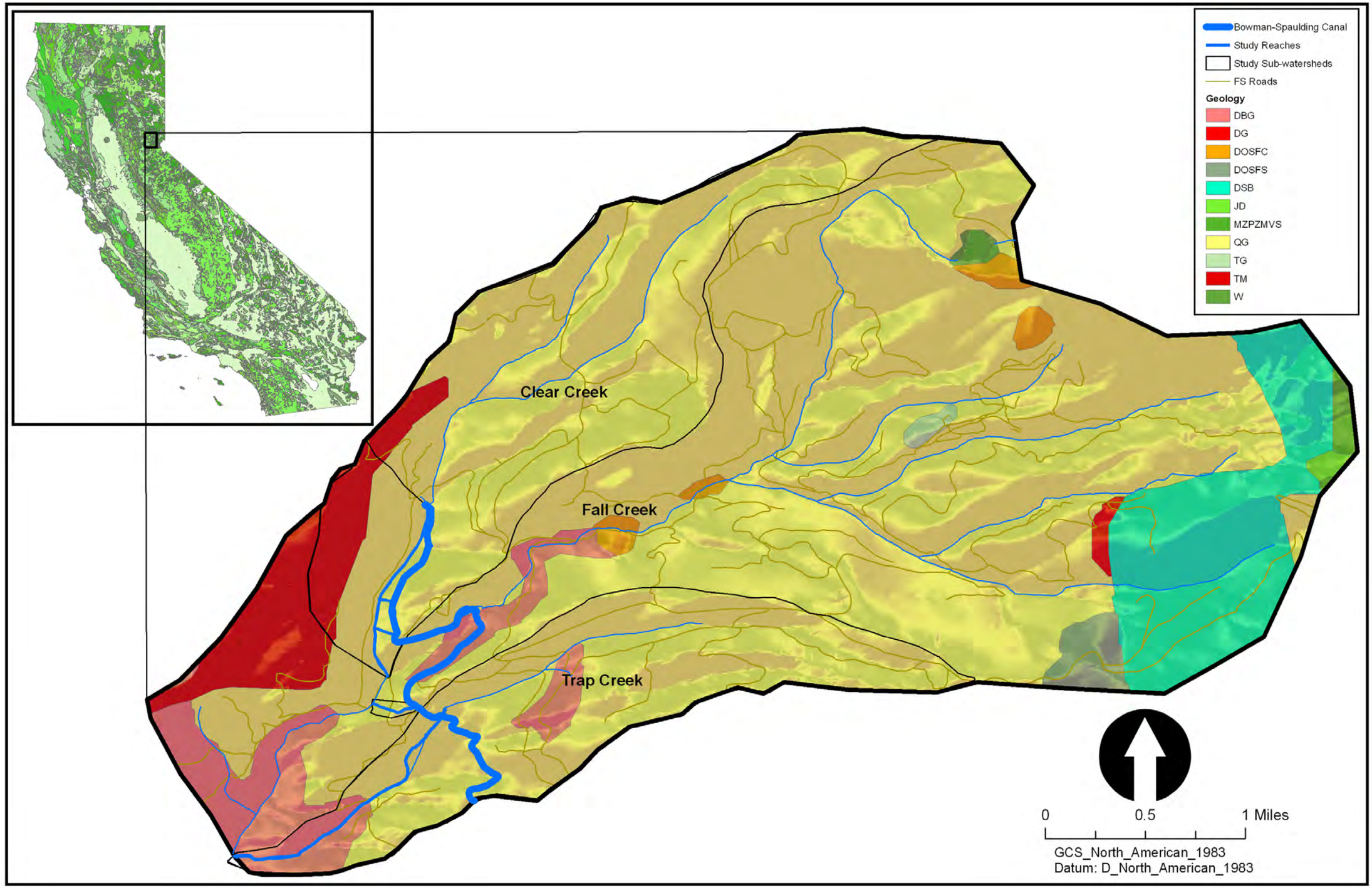


Figure 1. Channel Stabilization Plan Clear Creek, Christmas Tree Waste Way, and Trap Creek Study Area Location Map.

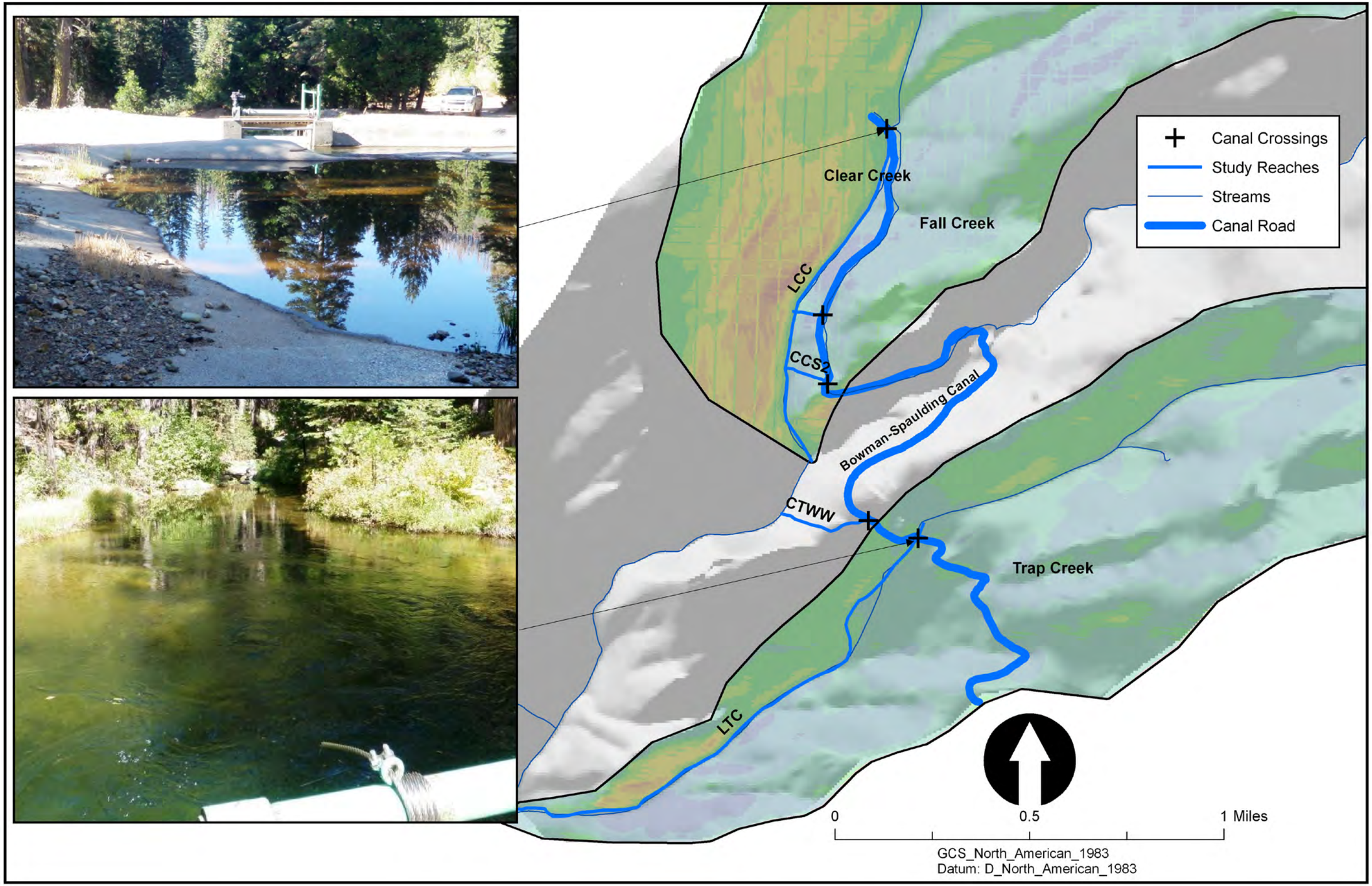


Figure 2. Clear Creek, Christmas Tree Waste Way, and Trap Bowman-Spaulding Canal Diversion and Study Reach Location Map.

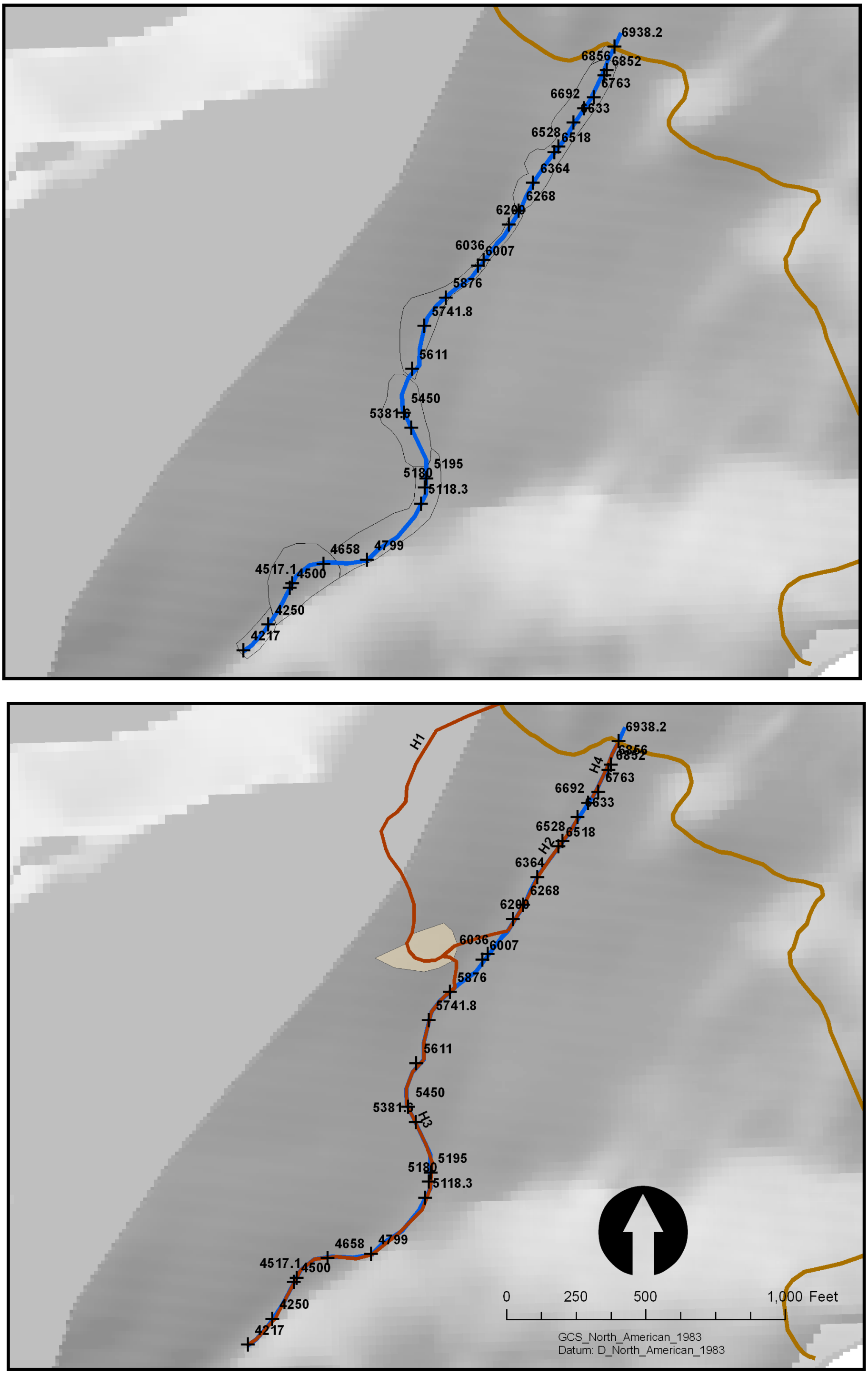


Figure 3. Clear Creek, Christmas Tree Waste Way, and Trap Bowman-Spaulding Canal Diversion and Study Reach Location Map.

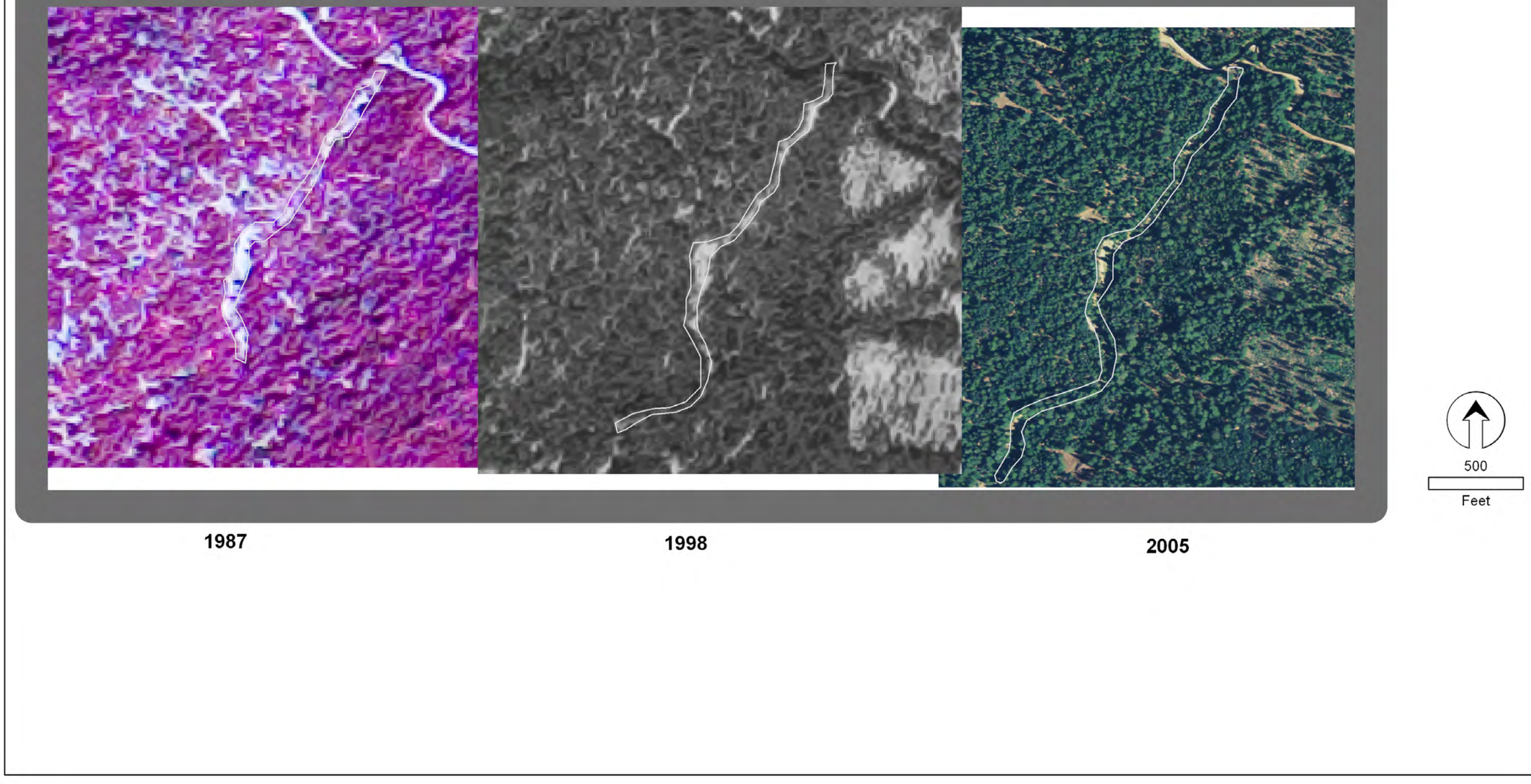
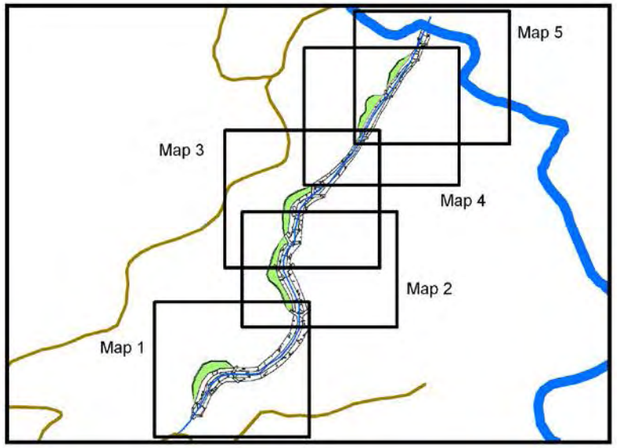
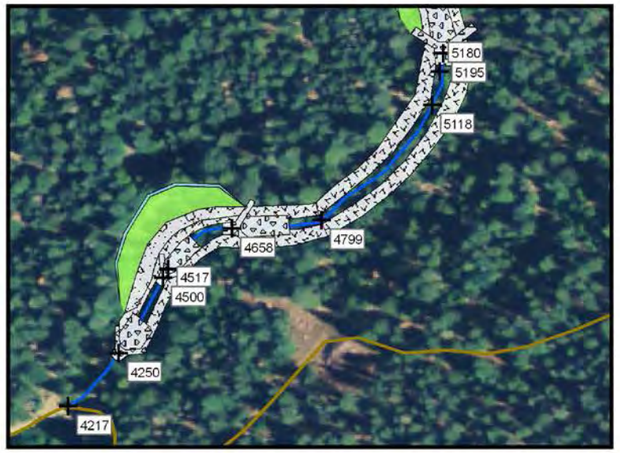


Figure 4. Trap Creek Historical Aerial Photograph Comparison Map.





Map 1

Map 2

Map 3

Map 4

Map 5

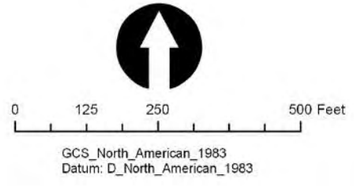


Figure 5. Trap Creek Channel Stabilization Treatments Reaches and Conceptual Treatments.

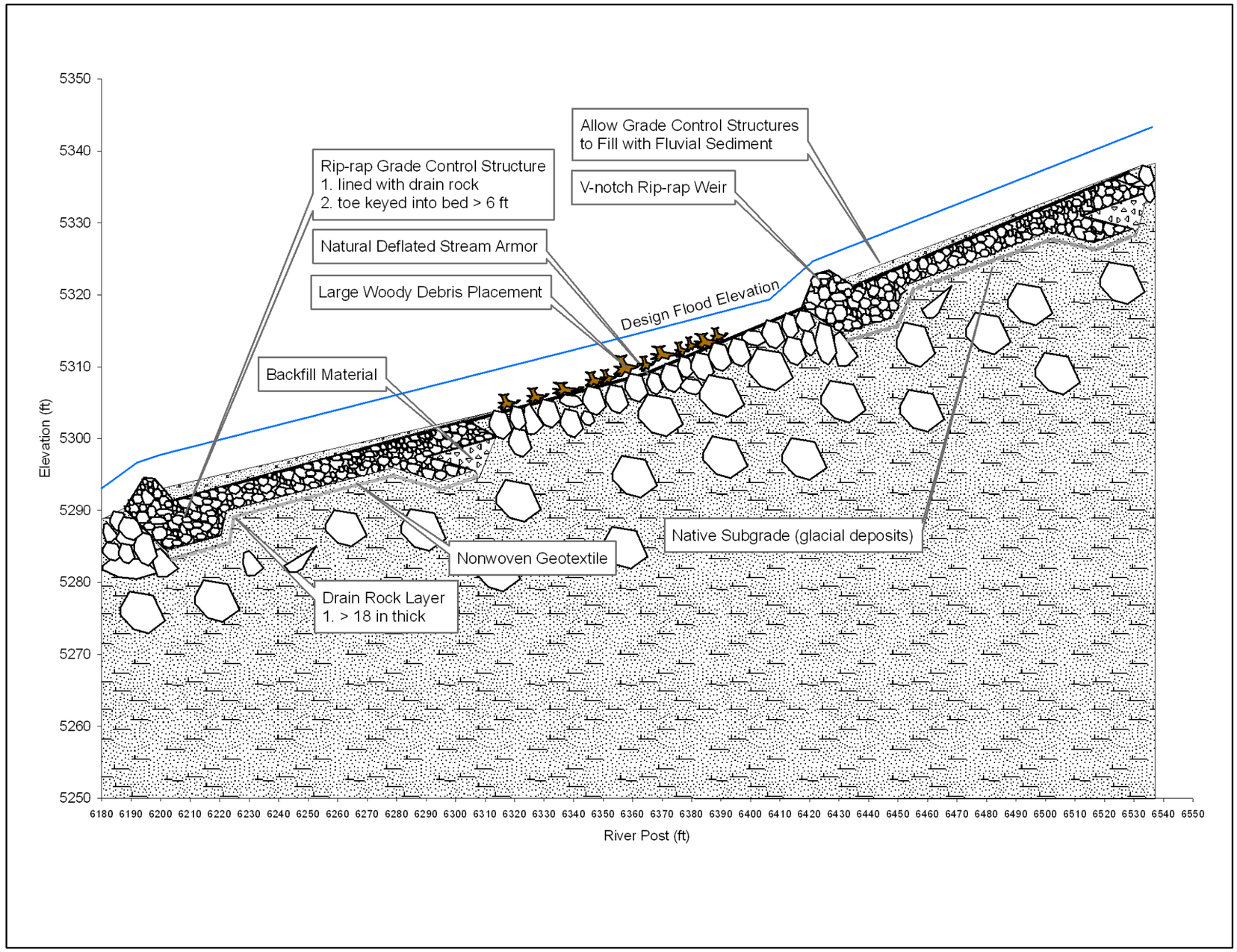


Figure 6. Trap Creek Channel Stabilization Grade Control Structure Typical.

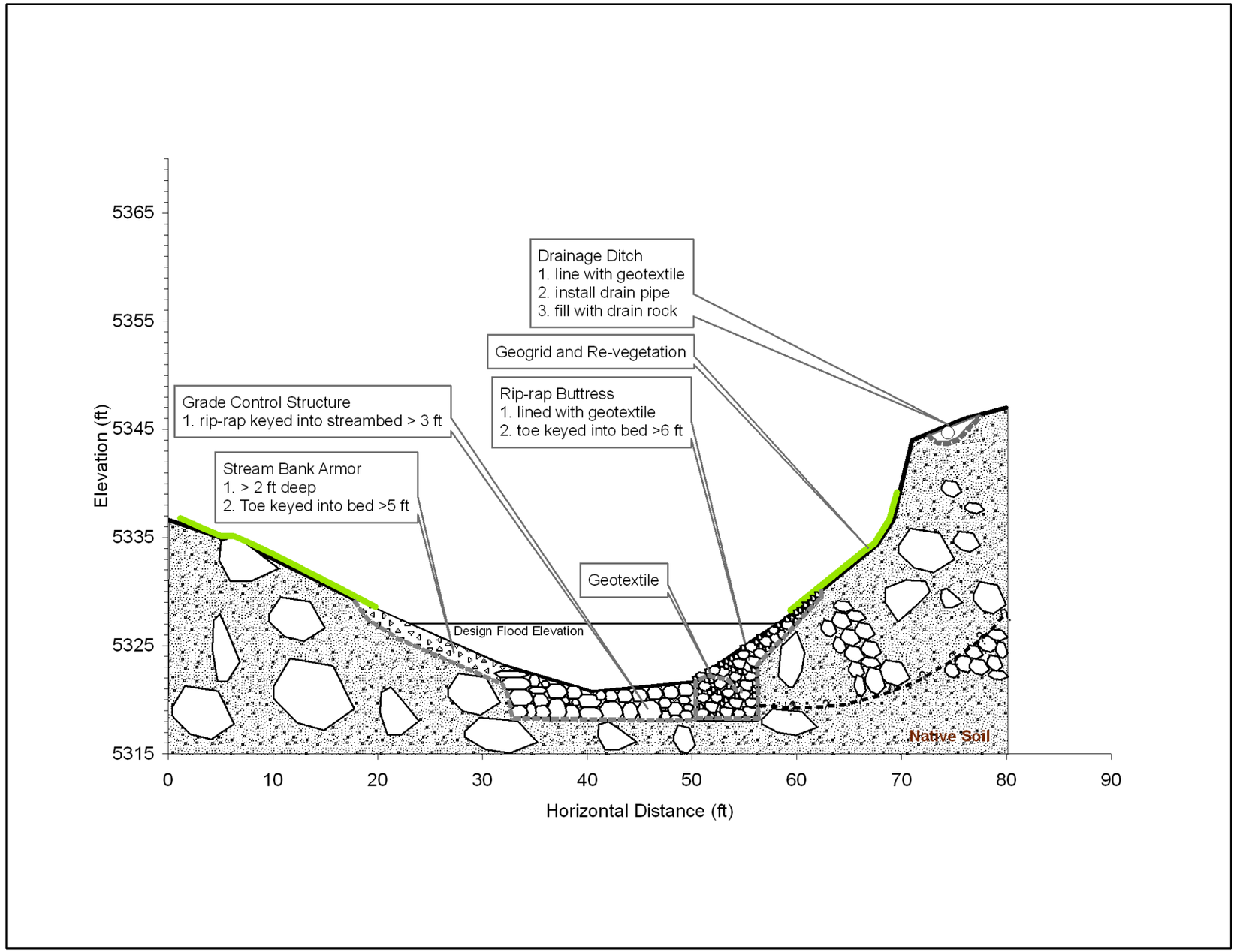
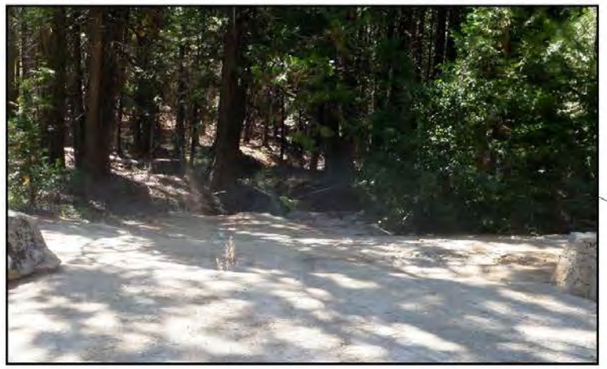
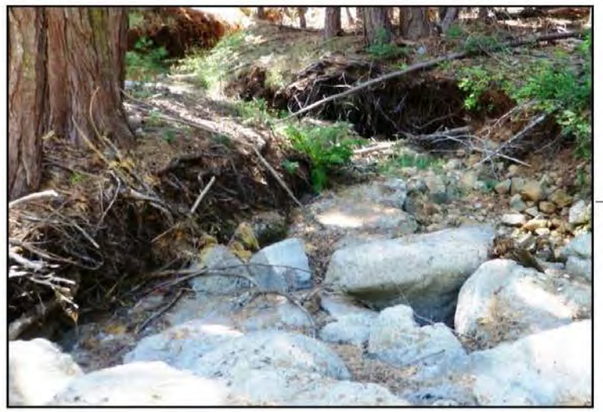


Figure 7. Trap Creek Channel Stabilization Landslide Abutment Wall and Bank Armoring Typical.

Figure 8. Clear Creek Channel Stabilization Treatments Reaches and Conceptual Treatments.





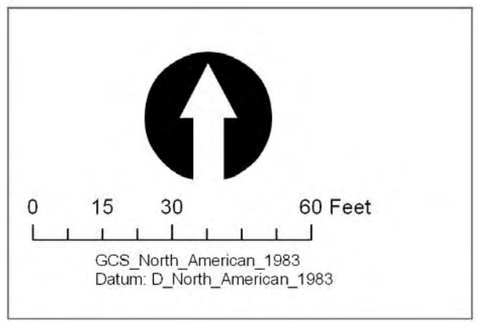


Figure 9. Christmas Tree Waste Way Channel Stabilization Treatments Reaches and Conceptual Treatments.

ATTACHMENT B

Study Data Needs

Page Left Blank

B.1 Topography

- For Trap Creek, Clear Creek, and Christmas Tree Wasteway use existing elevation data from USGS NED.

B.2 Stream Channel Geometry

B.2.1 Clear Creek

- Characterize channel geometry using existing field data.

B.2.2 Christmas Tree Wasteway

- Characterize channel geometry using existing field data.

B.2.3 Trap Creek

- Characterize channel geometry using existing field data and 5-meter DEM, as possible.
- Develop longitudinal profile of main stream channel using 5-meter DEM.
- Establish reference reaches for surveys (one reach per 2000 feet, three total).
- At the canal;
  - Within first 2,000 feet; and
  - Within second 2,000 feet.
- Survey 2 to 3 stream channel cross-sections per reference reach
- Survey longitudinal profile along reference reaches.
- Characterize channel roughness.

B.3 Stream Channel Substrate

B.3.1 Clear Creek

- Characterize channel substrate using existing field data.

B.3.2 Christmas Tree Wasteway

- Characterize channel substrate using existing field data.

B.3.3 Trap Creek

- Characterize channel substrate using existing field data.
- Measure substrate at reference reach cross-sections (pebble counts and visual).

B.4 Stream Banks

B.4.1 Clear Creek

- Characterize upper and lower stream bank stability using existing field data.

B.4.2 Christmas Tree Wasteway

- Characterize upper and lower stream bank stability using existing field data.

B.4.3 Trap Creek

- Characterize upper and lower stream banks with 5-meter DEM, as possible.
- Estimate the number of unstable stream banks along 4,000 ft study reach using DEM and aerial photographs.
- Measure stream bank stability at selected points within reference reaches to include:
  - Length, width, and height;
  - Slope;
  - Bedrock/Soil;
  - Slope stability;
  - Vegetation cover;
  - High water marks;
  - Evidence of scour;
  - Presence of groundwater; and
  - Photographs.
- Measure engineering properties of bank material using field methods to include:
  - Strength and competency;
  - Relative density;
  - Compaction;
  - Rippability; and
  - Cohesion.

- Collect bulk samples at selected sites to quantify engineering properties to include:
  - Gradation;
  - Moisture content;
  - Remolded direct shear;
  - Liquid Limit and Plasticity Index; and
  - Proctor (compaction).
- For unstable stream banks gather additional data needed to include:
  - Type;
  - Size and volume (length, width, and depth);
  - Activity and rate of movement;
  - Water Content;
  - Slope position (lower or upper bank)
  - Slope transect (crown to toe);
  - Number, distribution, height and width of tension cracks;
  - Orientation of upslope trees;
  - Earth material, if present; and
  - Discontinuities.

B.5 Surface Flow and Sediment Discharge

B.5.1 Clear Creek

- Characterize canal surface flow release volume, timing, and duration.
- Determine hydrologic connection between channels upstream and downstream of canal.
- Characterize canal surface flow sediment discharge.

B.5.2 Christmas Tree Wasteway

- Characterize canal surface flow release volume, timing, and duration.
- Determine hydrologic connection between channels upstream and downstream of canal.
- Characterize canal surface flow sediment discharge.

B.5.3 Trap Creek

- Characterize canal surface flow release volume, timing, and duration.

- Determine hydrologic connection between channels upstream and downstream of canal.
- Characterize canal surface flow sediment discharge.
- Perform test flow this winter, video to observe dynamics, and measure flow, if possible.

Application for a New License
Major Project – Existing Dam

Amended Fire Prevention and Response Plan

Yuba-Bear Hydroelectric Project
FERC Project No. 2266

Prepared by:
Nevada Irrigation District
1036 West Main Street
Grass Valley, CA 95945
www.nidwater.com

June 2012

Table of Contents

Table of Contents (continued)

List of Tables

List of Figures

List of Attachments

Glossary

Term	Definition
ac-ft	acre-feet
BLM	United States Department of the Interior, Bureau of Land Management
BSC	Bowman-Spaulding Canal
Building or structure	Any structure used for support or shelter of any use or occupancy
CAL FIRE	California Department of Forestry and Fire Protection
CPRC	California Public Resource Code
Defensible space	The area within the perimeter of a parcel where basic wildfire protection practices are implemented; this area provides the key point of defense from an approaching wildfire or escaping structure fire. The area is characterized by the establishment and maintenance of emergency vehicle access, emergency water reserves, street names and building identification, and fuel modification measures.
DLA	draft license application
FERC	Federal Energy Regulatory Commission
FLA	final license application
Fire risk	The chance of fire starting, as determined by the presence and activity of causative agents; a causative agent or a number related to the potential number of firebrands (embers) to which a given area will be exposed during the day
Forest Service	United States Department of Agriculture, Forest Service
Fuel reduction	Manipulation, including combustion, or removal of fuels to reduce the likelihood of ignition and/or to lessen potential damage and resistance to control
GIS	global information system
GPS	global positioning system
GVICC	Grass Valley Incident Command Center
kV	kilovolt
Land and Resource Management Plan (LRMP)	A document prepared with public participation and approved by an agency administrator that provides general guidance and direction for land and resource management activities for an administrative area. The LRMP identifies the need for fire's role in a particular area and for a specific benefit. The objectives in the LRMP provide the basis for the development of fire management objective and the fire management program in the designated area.
MW	megawatt
NFS	National Forest System
NID or Licensee	Nevada Irrigation District
PAL	Project activity levels
Plan	Fire Prevention and Response Plan
Prevention	Activities directed at reducing the number of person-caused fires, including public education, law enforcement, dissemination of information, and the reduction of hazards
Project	Yuba-Bear Hydroelectric Project, FERC Project No. 2266
Project Area	The area comprised by the FERC No. 2266 Project boundary
O&M	operation and maintenance
SNFPA	Sierra Nevada Forest Plan Amendment
SPI	Sierra Pacific Industries
Suppression	All the work of extinguishing or containing a fire, beginning with its discovery
TNF	Tahoe National Forest
Wildfire	An unplanned and unwanted wildland fire, including unauthorized human-caused fires, escaped wildland fire use events, escaped prescribed fire projects, and all other wildland fires where the objective is to put the fire out

Page Left Blank

1.0 Introduction

Nevada Irrigation District (NID or Licensee) owns and operates the Yuba-Bear Hydroelectric Project (Project), Federal Energy Regulatory Commission (FERC) Project No. 2266. The initial license for the Project, issued by the Federal Power Commission, FERC's predecessor, to NID on June 24, 1963, was effective on May 1, 1963, for a term ending April 30, 2013. On November 3, 2010, NID filed its draft license application (DLA). Therein, NID proposed to, "within one year of license issuance, file with the [Federal Energy Regulatory] Commission a Fire Prevention and Response Plan that is approved by the Forest Service, and developed in consultation with appropriate State and local fire agencies. The plan shall set forth Licensee's responsibility for the prevention (excluding vegetation treatment as described in Condition No. YB-TR2), reporting, control, and extinguishing of fires in the vicinity of the Project resulting from project operations."

NID, in compliance with the Integrated Licensing Process at 18 CFR 5.17, will file a final license application (FLA) with FERC and with all interested relicensing participants no later than April 30, 2011. This draft Fire Prevention and Response Plan is included as a resource measure in the FLA.

2.0 Project Location and Feature Description

The Project is located on the west slope of the Sierra Nevada in the Middle Yuba River, Canyon Creek, Fall Creek, Rucker Creek, and Bear River watersheds in Nevada, Placer, and Sierra counties, California. The Project can be accessed from Interstate Highway 80, Magra Road (U.S. 40), State Highway 20, and State Highway 89; and then onto county and United States Department of Agriculture, Forest Service (Forest Service) system roads into the Project Area. The Project consists of four developments – Bowman, Dutch Flat, Chicago Park, and Rollins – which, in total, include: 12 main dams with a combined gross storage capacity of about 218,700 acre-feet (ac-ft) of water; 4 water conduits; 4 powerhouses with associated switchyards with a combined authorized installed capacity of 79.32 megawatts (MW); one 9.0-mile-long, 60-kilovolt (kV) transmission line; and appurtenant facilities and structures, including recreation facilities. On public lands, above 3,000 feet, the Project is primarily located within the boundaries of the Tahoe National Forest (TNF), and below 3,000 feet on United States Department of Interior, Bureau of Land Management (BLM) property. Predominantly, however, the Project is located on private lands.

Some of the area within the FERC Project Boundary, as shown in Exhibit G of Licensee's application for a new license, occupies federally owned National Forest System (NFS) land managed by the Forest Service, as part of the TNF, and some is federally owned land administered by the BLM in conformance with the Sierra Resource Management Plan (BLM 2008). Table 2.0-2 shows the amount of federally owned land by development, and Table 2.0-3 lists features partially or fully located on federally owned land by development.

Table 2.0-1 summarizes land ownership by development in the proposed Yuba-Bear Hydroelectric Project. Figure 2.0-1 shows a flow schematic of the Project.

Table 2.0-1. Summary of land ownership within the Yuba-Bear Hydroelectric Project FERC Project Boundary by Project Development.[1]

Development	Forest Service (ac)	BLM (ac)	NID (ac)	Other Private (ac)	Total (ac)	Percent
PROPOSED FERC PROJECT BOUNDARY						
Bowman	1,202.2	--	2,313.9	112.8	3,628.9	60%
Dutch Flat	205.1	13.9	53.1	89.4	383.7	6%
Chicago Park	--	77.0	48.1	70.3	195.4	3%
Rollins	--	140.2	1,690.6	7.3	1,838.1	30%
Bowman-Spaulding Transmission Line	28.2	--	1.9	28.2	58.3	1%
Total	**1,435.5**	**231.1**	**4,107.7**	**308.0**	**6,082.3**	**100%**
Percent	**24%**	**4%**	**67%**	**5%**	**100%**	**--**

[1] The Bowman-Spaulding Transmission Line, part of the Bowman Development, is shown separately because it is a linear facility.

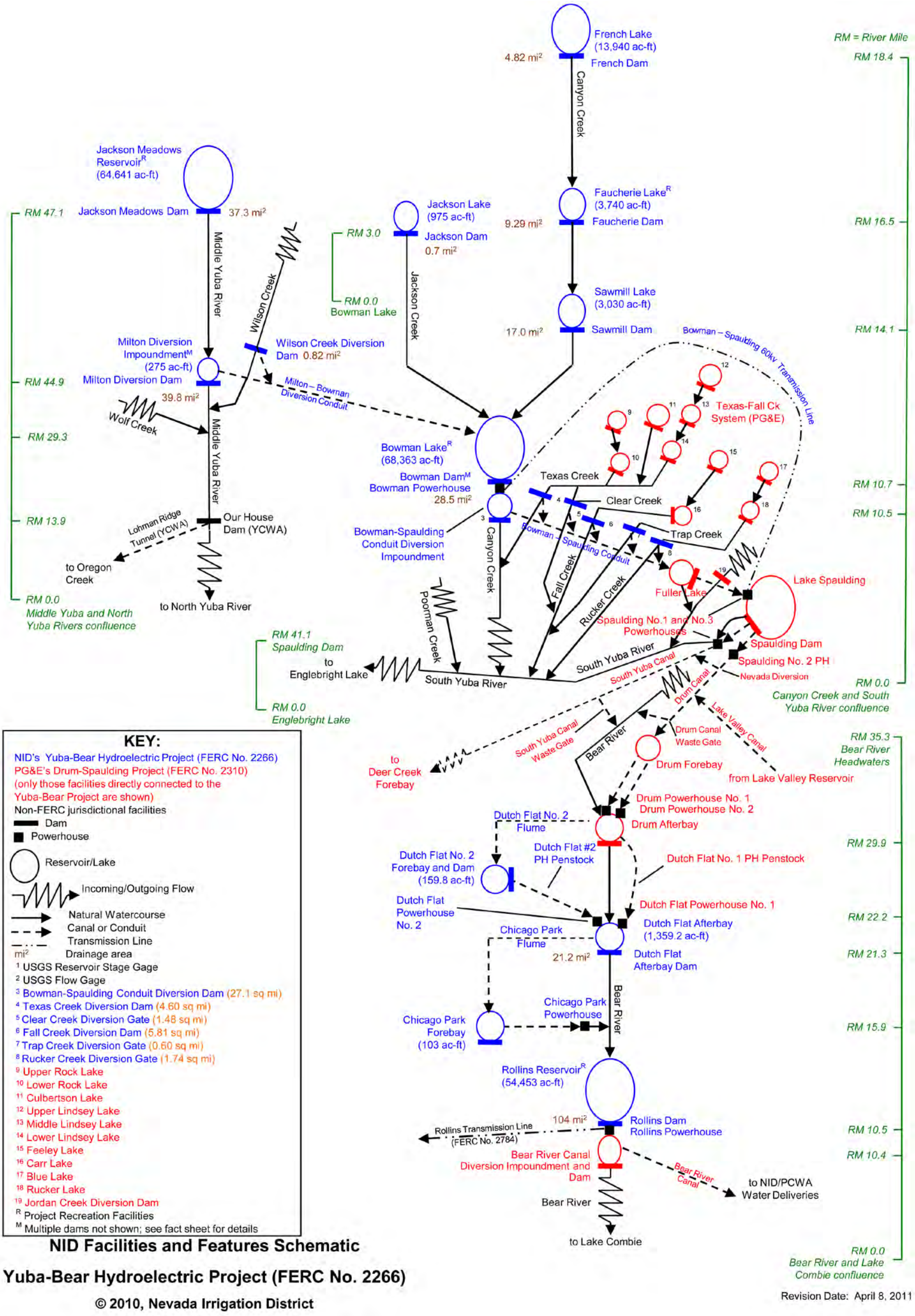


Figure 2.0-1. Yuba-Bear Hydroelectric Project flow schematic.

Page Left Blank

3.0 Purpose

The purpose of this Fire Prevention and Response Plan (Plan) document is to provide fire prevention procedures, reporting, and safe fire practices for NID personnel and contractors responsible for operating and maintaining the Project.

4.0 Project Area

The Project Area is all land within the FERC Project Boundary; this plan only includes those Project features located on federal lands.[1] Figure 4.0-1 shows the Project Area with fire hazard levels as designated by the Forest Service and the California Department of Forestry and Fire Protection (CAL FIRE).

[1] The existing FERC Project Boundary is shown on the Project Exhibit G, J, and K maps.

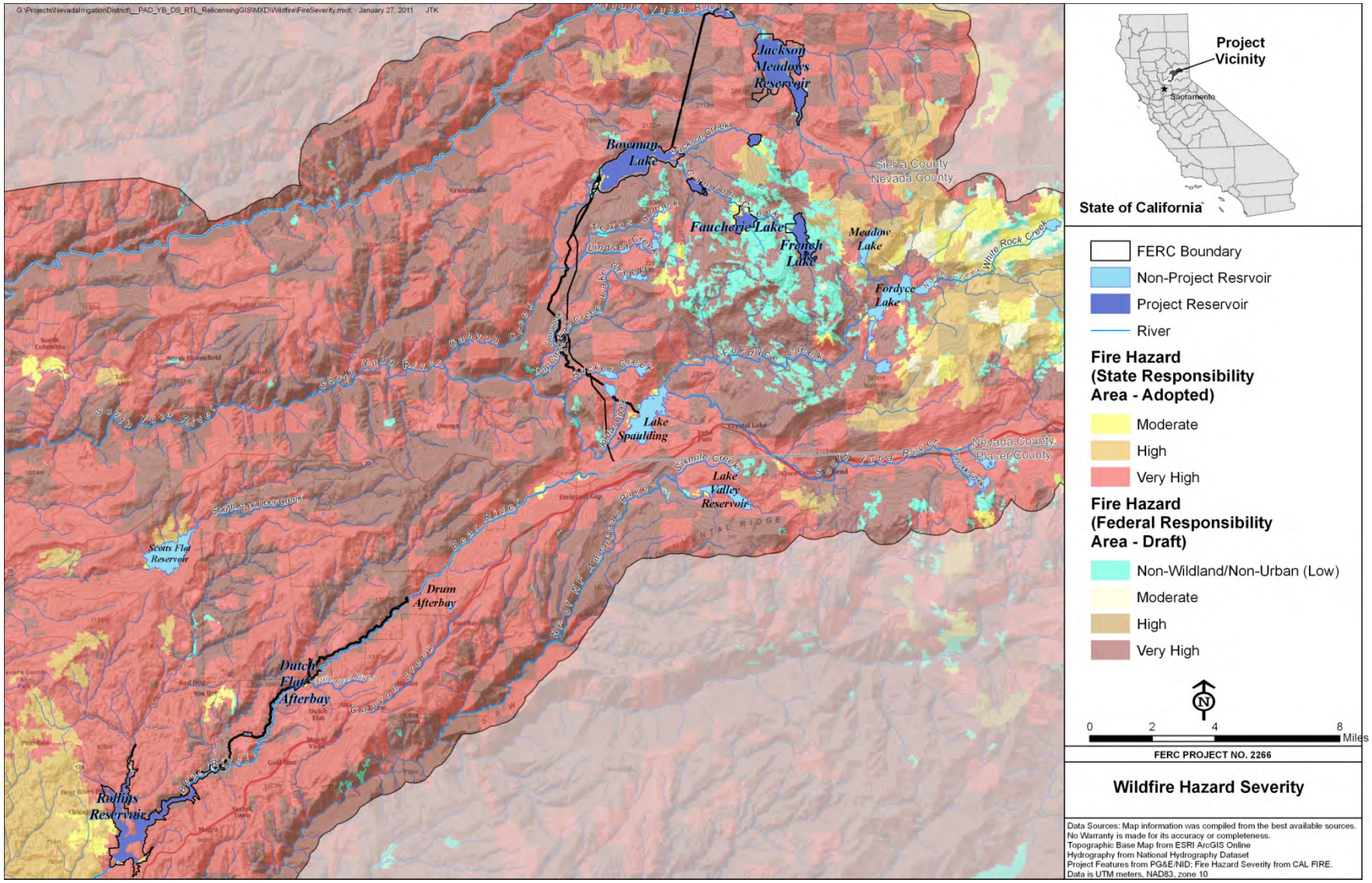


Figure 4.0-1. Fire hazard levels in the Yuba-Bear Hydroelectric Project Area.

5.0 Methods

A variety of methods and research was utilized in the development of this Plan, all of which are summarized in the sub-sections that follow.

5.1 Information/Data Collection and Research

The information sources and data listed below relating to fire prevention, suppression, and fuel management on lands within the Project Area were reviewed to provide appropriate background and technical reference for the development of this draft Plan.

5.1.1 Federal Agency Land Use and Resource Management Plans

- The Sierra Nevada Forest Plan Amendment (SNFPA) Final Environmental Impact Statement, 2001
- The SNFPA Draft Supplemental Environmental Impact Statement, 2010, Final Record of Decision, 2004, and Alternative S2 (Appendix A Standards & Guidelines)
- The TNF Land and Resource Management Plan (LRMP) (1988); as amended and updated by the Sierra Nevada Forest Plan Supplements of 2001 and 2004.

5.1.2 Fire Management, Fire Prevention, Fire Response, and Fuel Management Plans

- The TNF Fire Project Plan
- TNF Project Activity Levels (PAL) (see example, Attachment A)
- Forest Service Fire Management Plan, 2008
- Nevada-Yuba-Placer Fire Management Plan, 2007
- FSM 5103.1 – Forest Service Policies for Wildland Fire Management – Fire Prevention (2004)
- FSH 5109.18 – Forest Service Wildland Fire Prevention Handbook (2004)
- California Department of Forestry and Fire Protection, 2010 Strategic Fire Plan for California
- Nevada County Fire Plan, attached to Nevada-Yuba-Placer Fire Management Plan, 2007
- Wildland Fire Leadership Council Interagency strategy for the implementation of federal wildland fire management policy, 2003.

5.1.3 Agency Management Goals for Implementation of Fire Prevention and Response Actions on Forest Service Land

As defined by the TNF Fire Prevention Plan, agency management goals for implementing fire prevention and response actions on Forest Service land within the Project Area are identified as follows:

- Protect human life, property, and natural/cultural resources both within and adjacent to agency-administered land.
- Identify problem areas, causal factors, and increasing trends and implement measures aimed at reducing human-caused fires in these areas.
- Apply maximum prevention efforts to minimize the ignition of human-caused fires in watersheds and high value areas identified as high hazard.
- Minimize and, where necessary, mitigate human-induced impacts to resources, natural processes, or improvements attributable to wildland fire activities.
- Prevent and investigate all unplanned human-caused fires.
- Focus cost effective prevention activities in the priority areas.

5.1.4 Cooperative Agreements, Regulations, and Codes

Applicable federal, state, and local agencies' cooperative agreements, regulations, and codes related to fire protection, prevention, and suppression activities within the Project Area were compiled, reviewed, utilized, and referenced as appropriate. These references included: California Public Resource Codes (CPRC) 4291-4293, 4421-4423, 4425, 4427-4428, 4430-4431, 4433, 4442, 4442.5, 4443, and 4446; California Health and Safety Codes 12101, 13000, 13001, and 13005; the Forest Service Manual 5130; and the California Department of Forestry and Fire Protection (Cal Fire) Power Line Fire Prevention Field Guide.

5.1.5 Emergency Communication Plans

Federal, state, and local fire agency emergency management, fire dispatch, and mobilization plans and documents were compiled, reviewed, utilized, and referenced as appropriate.

- Project-related fire prevention and safety plans
- Grass Valley Incident Command Center (GVICC) – ERD-Mobilization Plans.

5.1.6 Fire Ignition History

Fire incident and statistical records for the TNF were provided by the Forest Service FAMWEB fire occurrence data archive program (USFS 2010).

5.1.7 Geographic Information Data

Geographic information system (GIS) databases describing land ownership, land use, vegetation, project infrastructure, and natural resource values were obtained from the TNF. These databases were used to identify, analyze, and evaluate current and historic sources of fire ignition and identify communication processes and protocols to be used in the event of emergency.

6.0 Analysis

6.1 Technical Approach

The period from 2000-2009 was analyzed using available fire occurrence data collected from the TNF. Fire occurrences were analyzed within a one-mile buffer of the FERC Project Boundary, which represents an analysis area that identifies not only those fires that may have occurred in the Project, but also those fires that present a realistic threat to the Project's infrastructure. Fire occurrence data was analyzed for the following:

- Individual ignition by size, cause, date, and access
- Total ignitions within fire occurrence analysis area
- Total percent ignition by cause within fire occurrence analysis area
- Total acres burned by cause within fire occurrence analysis area
- Total percent acres burned by cause within fire occurrence analysis area.

6.2 Fire Occurrence Analysis Results

The results of the fire occurrence analysis identified 52 reported fire ignitions from June 2000 through August 2009 (average 5.2 per year) within the one-mile buffer of the Project Boundary, on a total of 25.7 acres. The primary cause of fire (27 of 52 reported) was recreation-based campfires, with lightning (15 of 52 reported) the second most common cause. The largest fire exceeded 7 acres in size, but the majority of fires were 0.1 acre or less in size. There was no record of any Project operation and maintenance (O&M) activity related fire ignitions occurring during this period.

Table 6.2-1 below represents a summary of reported individual fire ignitions by name, date, size, and cause identified in the fire occurrence analysis.

Table 6.2-1. Wildfires in the Yuba-Bear Hydroelectric Project Vicinity.

Fire Name	Fire Date	Cause[1]	Reported Acres
Lang	6/07/2000	Miscellaneous	0.1
English	6/27/2000	Unidentified	0.1
Bowman	07/03/2000	Unidentified	0.2
Five	8/10/2000	Smoking	1.0
Snowflower	8/15/2000	Smoking	5.0
Sawmill	10/25/2000	Smoking	0.1
Blue	05/05/2001	Smoking	0.2

Table 6.2-1. (continued)

Fire Name	Fire Date	Cause[1]	Reported Acres
Generic	06/02/2001	Campfire	0.1
Spaulding	06/25/2001	Smoking	0.2
Bowman	08/20/2001	Lightning	0.1
Toll House	09/03/2001	Smoking	0.1
Black Oak	09/06/2001	Lightning	1.0
Lang	06/29/2002	Smoking	0.2
Celina	07/21/2002	Unidentified	0.1
Sawmill	09/09/2002	Smoking	0.1
Fiberboard	09/20/2002	Miscellaneous	0.5
Jackson	9/23/2002	Campfire	0.1
Granite	11/18/2002	Debris Burning	0.1
Spill	07/27/2003	Lightning	0.1
Sawmill	08/10/2003	Campfire	0.1
Ahart	08/22/2003	Lightning	0.3
Red	08/24/2003	Lightning	0.1
Jordan	09/03/2003	Lightning	0.2
Bald 1	09/03/2003	Lightning	0.1
East	09/03/2003	Lightning	0.1
Zion	09/04/2003	Lightning	0.1
Pinoli Peak	06/08/2004	Lightning	0.1
Milton	06/09/2004	Lightning	0.1
Lizzy	7/11/2004	Campfire	0.2
Bowman	8/5/2004	Campfire	0.1
Canyon	08/07/2004	Campfire	0.1
Trailer	08/20/2004	Campfire	0.1
Lake 1	09/08/2004	Equipment Use	0.1
Sawmill	08/09/2005	Campfire	0.3
Painted	12/03/2005	Lightning	0.1
Bowrock	06/17/2006	Campfire	0.1
A-1	06/26/2006	Lightning	3.0
Rucker	07/19/2006	Smoking	0.1
Faucherie	08/25/2006	Campfire	0.1
Sawmill	09/03/2006	Campfire	0.1
Bowman	06/03/2007	Campfire	0
Bear	07/26/2007	Campfire	1.0
Lang	08/19/2007	Campfire	0
Jackson	08/27/2007	Campfire	0
Fuller	09/09/2007	Campfire	0
Haystack	11/02/2007	Campfire	0
Clear	06/21/2008	Lightning	2.0
Woodcamp	07/16/2008	Campfire	0.1
Creek	08/03/2008	Miscellaneous	7.0
Carr	09/28/2008	Miscellaneous	0.3
Bowman	07/04/2009	Campfire	0.2
Emerald	08/09/2009	Campfire	0.1
Total	**10 years**	--	**25.7**

[1] Miscellaneous fires include those that are still under investigation.

Table 6.2-2 below represents a statistical summary of all fire ignitions identified in the fire occurrence analysis.

Table 6.2-2. Fire Occurrence Analysis Statistics by Cause (2000-2009)

Cause	Total Ignitions	Percent of Cause	Total Acres	Percent of Acres
Lightning	15	29%	6.7	26%
Smoking	2	4%	0.2	1%
Campfire	27	51%	9.6	37%
Miscellaneous	4	8%	7.9	31%
Equipment Use	3	6%	1.2	5%
Debris Burning	1	2%	0.1	>1%
Vehicle	0	0%	0.0	0%
Railroad	0	0%	0.0	0%
Arson	0	0%	0.0	0%
Playing With Fire	0	0%	0.0	0%
Unidentified	0	0%	0.0	0%
Total	**52**	**100%**	**25.7**	**100%**

6.3 Fire Occurrence Trend Analysis

The Project-specific fire occurrence analysis also included a statistical trend analysis of the fire ignition/fire cause history. This analysis served to ascertain causes for historical fires and occurrence patterns that define the historic presence and impacts of fires, including project-induced fires, within the Project Area.

There was no record of any fire ignitions resulting from Project O&M activities. The ignition analysis also indicates that the use of Project access roads for O&M have not directly resulted in any fire starts within the analysis period.

The number of human-caused fires (none related to Project O&M) indicates a continuing presence of ignition sources that may be further reduced by the increased implementation of fire prevention measures that specifically target recreation-based users in the national forests.

The Project Area remains at risk from high-intensity wildfires that typically start outside of the Project Area, but can rapidly escalate to threaten Project infrastructure. These high-threat fires typically burn in heavy fuel and steep topography, and resist aggressive fire suppression efforts over prolonged periods of time.

6.4 Project Wildfire Risk Analysis

Wildfire risks that are present are associated primarily with dispersed recreation activities, including hunting and dispersed camping, vehicle access through the Project Area, and Project-related O&M and construction activities. Of these wildfire risks, the fire occurrence analysis clearly indicates that human-caused, recreation-based fires are the source for the majority of fire starts.

The Project's recreation facilities and opportunities are found in three basins – the South Yuba River Basin; the Canyon Creek Basin; and the Bear River Basin. Based on the geographic dispersion of the recreation facilities, the Project facilities and opportunities are divided into seven general areas: Jackson Meadows Reservoir, Milton Diversion Impoundment, French Lake,

Faucherie Lake, Sawmill Lake, Bowman Lake, and Rollins Reservoir, as well as the interconnecting trails and tributaries between the reservoirs. Recreation activities in the Project Area are numerous and include, but are not limited to, camping, fishing, boating, swimming, hiking, picnicking, sightseeing, wildlife viewing, four-wheel driving, and hunting. These recreational uses create the potential for wildfires, and the majority of the fires in the analysis were human-caused, including 27 recreation-based campfires.

Vehicle access into the Project Area is via federal and State of California roads, as well as private roads. Roads primary to accessing the Project Area include U.S. Interstate 80, Magra Road (U.S. 40), State Highway 20, State Highway 174, and State Highway 89.

Additionally, Forest Service roads intersect the Project and are used by off-highway vehicles, hunters, Forest Service personnel, and NID O&M personnel. Current wildfire ignition analysis indicates that the previous use of Project access roads have not directly resulted in any fire starts.

The O&M of the Project infrastructure may also represent a degree of wildfire risk. However, as a result of on-going fire prevention and fuel reduction measures, there have been no wildfire starts resulting from Project-related O&M activities.

6.5 Analysis of Current Strategies to Reduce Project Fire Risk

The ignition analysis indicates that wildfire risk reduction strategies and prevention efforts have been effective in minimizing wildfires within the Project. The ignition analysis strongly indicates that the Forest Service and NID should emphasize fire prevention education activities and fire prevention signage programs directed at recreational-based activities in and around developed recreational/camping areas.

7.0 Fire Prevention and Protection Actions

7.1 General Fire Prevention and Protection Action Summary

The following language summarizes the Project's fire prevention action items identified in this section:

- During the Project's general fire precautionary period(s) (the TNF fire precautionary period is May 15 to November 1), NID will comply with the following codes, regulations, requirements, measures, and activities:
  - All applicable laws of the CPRCs listed in Section 5.1.4 of this document
  - The general fire prevention requirements applicable to Project-related operations, maintenance, equipment, tool use, and fire use activities
  - TNF's PAL fire restrictions.

7.2 Specific Fire Prevention and Protection Requirements Applicable to Project-Related Operations & Maintenance on Federal Lands

For the purposes of this Plan, NID will comply with the following:

- NID shall comply with all applicable laws of the State of California, CPRCs, and California Health and Safety Codes.
- NID must secure a special written permit from the appropriate national forest district ranger, CAL FIRE battalion chief, or any of their officially designated representatives, before engaging in any of the activities listed below:
  - Blasting and storage of explosives and detonators (explosives permit required by California Health & Safety Code, Section 12101)
  - Burning
  - Air pollution (issued by local state or county air pollution control districts, as applicable)
  - Camp, lunch, and warming fires
  - Welding and cutting.
- NID shall provide a communication system connecting each operation with the designated Forest Service and/or CAL FIRE dispatch center. The communications system shall be capable of notifying the agency's dispatch center upon the discovery of a fire on Project lands. This communications system will be operable for NID's Project operations during the fire precautionary period.
- NID will ensure that each vehicle has the following fire fighting equipment:
  - A round point shovel with an overall length of not less than 46 inches (for clearing away flammable materials). A rake may be used, but it may not be a substitute for the shovel on the vehicle.
  - One back pack water pump ready for use.
  - One 5-pound or greater ABC fire extinguisher.

All fire fighting equipment must be accessible at the job site in the event of an emergency.

National Fire Protection Association placards will be posted at all locations with hazardous materials to alert emergency responders.

The TNF will notify NID daily during the fire season if "*Very High*" or "*Extreme*" fire index ratings are calculated by the California Department of Forestry and Fire Protection and the Forest Service. When the fire rating is "*Very High*":

- No open burning is permitted.
- All welding operations are to be discontinued except in an enclosed building or within an area cleared of all flammable material for a radius of 35 feet.

- All blasting will be discontinued.
- Smoking is prohibited in grasslands and forested areas.
- Vehicular travel will be restricted to cleared roads except in emergency situations.

7.3 Project Operations Requiring the Use of Fire/Burning

NID and its subcontractors shall obtain the necessary burn permit from the appropriate CAL FIRE unit(s) and respective air quality management district(s), as appropriate.

7.4 Protection, Applicable Codes, and Code Compliance Actions

NID is responsible for complying with all applicable laws of the State of California, CPRCs, California Health and Safety Codes, and Forest Service and BLM codes.

NID practices ongoing fire protection measures to comply with applicable codes and safeguard Project assets. For example, NID creates a defensible space around all Project structures, including powerhouses, canals, flumes, recreation facilities and on rock- and earth-filled dams, by routinely clearing vegetation in their immediate vicinity. Additionally, NID engages in ongoing transmission line/pole fire protection measures on the 9-mile-long, 60 kV Bowman-Spaulding Transmission Line. This includes periodic inspections to determine the need for vegetation removal, hazard tree trimming/removal, and compliance with CPRC clearance requirements. These efforts are expected to provide an effective level of fire protection and prevention within the Project.

7.4.1 Applicable Codes

NID will ensure that the Project is managed for compliance with CPRC Section 4292 - Power Line Hazard Reduction; CPRC Section 4293 - Line Clearance Guidelines; California General Order 95 - Rule 35 Tree Trimming Code (including Exceptions – Rule 35 and Rule 35 - Appendix E), CPRC Section 4291 - Building Clearance Guidelines, and other applicable codes and orders, unless otherwise exempt.

NID is also responsible for complying with all Forest Service and BLM rules and California public laws that are applicable to Project operations. Any fire code or operating violation will be corrected by NID to the satisfaction of the appropriate Forest Service, BLM, and/or CAL FIRE representative.

7.4.2 Utility Corridor Firebreak Vegetation Clearance Requirements

NID will ensure that the Bowman-Spaulding Transmission Line corridor is managed for compliance with CPRC Section 4292 - Power Line Hazard Reduction; CPRC Section 4293 - Line Clearance Guidelines; California General Order 95 - Rule 35 Tree Trimming Code (including Exceptions – Rule 35 and Rule 35 - Appendix E), and other applicable codes and orders, unless otherwise exempt. The firebreak clearances required by CPRC Sections 4292-

4293 are applicable, unless such pole or tower is exempt from minimum clearance requirements by provisions of 14, CCR, 1255 or CPRC 4296. Specifically, CPRC Section 4293 requires specific clearances be maintained between conductors and vegetation and also requires that hazard trees adjacent to the transmission line be removed. When the removal of hazard trees is required either inside or outside the FERC Project Boundary, the landowner (e.g., Forest Service for NFS land, BLM on public land administered by the BLM, and local land owner for private land) will be contacted to obtain permission to have the tree removed and agree on any provisions of the removal. On NFS land, Licensee will visit each tree with Forest Service staff to agree if the tree should be felled and, if so, how and any necessary follow-up measures. Should any investigations be needed (e.g., special-status plant and cultural surveys), Licensee will perform them prior to tree removal. The hazard tree will be removed, and the cut vegetation will be disposed of in a manner agreed to by the land owner.

For the Project's 60 kV transmission line, NID is required to maintain vertical and horizontal clearances of at least 4 feet between conductors, insulators, and adjacent vegetation.

Additionally, NID maintains a Special Use Permit with the Forest Service for the Bowman-Spaulding Transmission Line on NFS land (Attachment C).

7.4.3 Project Area Code Compliance and Inspections

Inspections of equipment utilized in maintaining the Project transmission line and surrounding vegetation are the responsibility of NID. Project compliance inspections are completed at periodic intervals to comply with appropriate State of California Codes and Forest Service regulations.

The purpose of the inspections is to look for missing or damaged equipment that may be an ignition source and identify vegetation that does not comply with all applicable codes.

7.5 Fire Prevention Requirements for Project Area Tool & Equipment Use

NID operations that involve any type of equipment/tool use within the Project Area will be required to take specific fire prevention actions and measures during the fire precautionary periods. Tools and equipment may be inspected by CAL FIRE or the Forest Service to ensure compliance with fire safety rules. NID will follow the equipment use-specific restrictions detailed by PAL ratings, as identified in Attachment A.

7.6 Project Activity Level Planning Requirements for the Project Area

The Forest Service has a fire prevention process that determines fire danger each day as displayed by PAL. The PAL is implemented and administered to regulate activities of private companies performing work on NFS land. All NID operations that involve any type of equipment/tool use within the Project Area during the respective fire precautionary period will

be required to monitor fire danger conditions and comply with the appropriate PAL fire prevention requirements. Project Area lands reside within TNF PAL jurisdictions. TNF has implemented a forest-specific fire prevention process that determines fire danger restrictions each day, as displayed by a PAL rating.

During the period from May 15 to November 1, the TNF will, in most cases, determine the following day's activity level by 4:00 PM each afternoon. NID can obtain Project Area PAL fire and activity restrictions for the following day by contacting the Supervisor's Office or Ranger District Office, respective to the project location, after 4:00 PM. NID must then comply with the prescribed requirements and restrictions for that day.

It is important to note that the Project Area PAL rating may be changed at any time if, in the judgment of the Forest Service, fire danger is higher or lower than predicted and such change is consistent with Forest management objectives. The decision to change the activity level, and when, and how to take weather observations for that purpose, are within the discretion of the Forest Service.

8.0 Emergency Response Preparedness

NID crew vehicles and contractor vehicles are each required to have axes, saws, shovels, and radios at all times, while in the field to facilitate NID's emergency response preparedness and avert small fires. Every work group will also have a water trailer with one of the vehicles.

9.0 Fire Safety at Recreation Facilities

NID follows a simple evacuation protocol in case of an emergency (including fire) at Rollins Reservoir campgrounds. In an emergency: 1) the gate attendant is notified; 2) the attendant initiates evacuation of the campground via announcing the evacuation over the public announcement system (loudspeaker), or by visiting each campsite; 3) after evacuation campground staff tour the campground to ensure the evacuation has been completed (Davidson pers. comm. 2011).

For the upper elevation recreation facilities (e.g., Jackson Meadows Reservoir), NID provides a letter to the Forest Service stating that they will abide by Forest Service laws, as well as allow the Forest Service to enforce those laws on NID lands (Attachment D) (Davidson pers. comm. 2011).

10.0 Reporting Fires

All Project-related fires and any fire detected in the Project Area will be immediately reported to the Forest Service by calling 911.

When reporting a wildland fire, NID personnel should provide the following information:

- Reporting party's name

- Office or cell phone call back number
- Fire location:
  - Legal or global position system (GPS) location description (township, range, section or latitude & longitude)
  - Descriptive location (road or geographic reference point)
- Fire size (in acres)
- Estimated rate of fire growth or spread
- On-scene wind conditions.

11.0 Fire Control/Extinguishing Fires

The GVICC is the focal point for coordinating the mobilization of resources for wildland fire and other incidents throughout the TNF and Nevada, Yuba, and Placer CAL FIRE Unit. The TNF and CAL FIRE are responsible for wildland fire protection and suppression on lands, in the Project Area, under their jurisdiction (Figure 12.0-1).

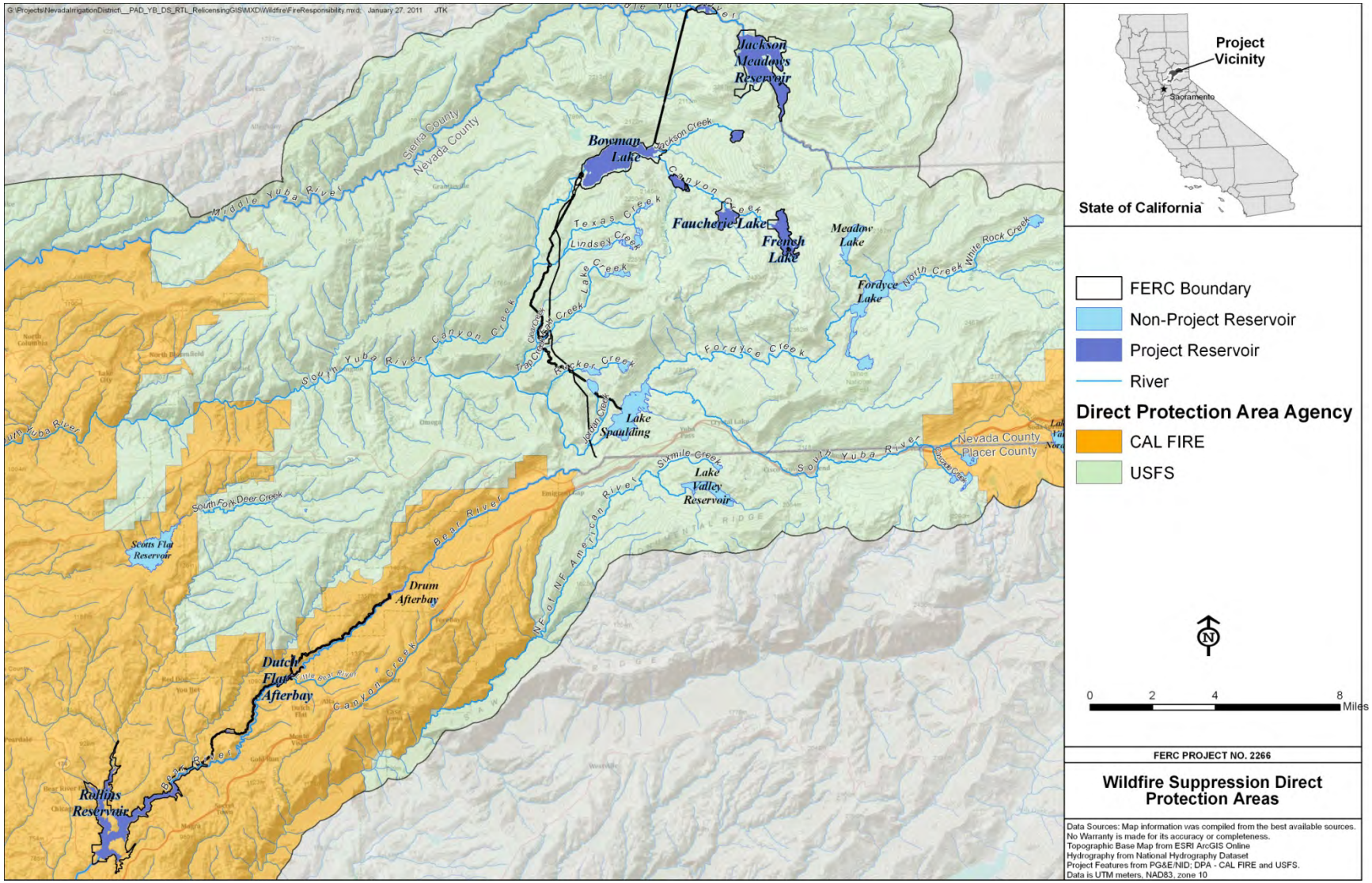


Figure 11.0-1. Fire-fighting jurisdictions in the Yuba-Bear Hydroelectric Project Area.

11.1 Road Access

The Project Area is readily accessible by fire control crews through state, county, and Forest Service roads and by NID's Project access roads (Attachment E). A description of these vehicular access routs by development is provided below.

11.1.1 Bowman Development

From Licensee's Project office in Colfax, access to the Bowman Development is from three highways: Magra Road (U.S. 40), U.S Interstate 80 (I-80), and State Highway 20 to Bowman Road. Bowman Lake Road extends from State Highway 20 to Meadow Lake Road (northeast of Bowman Lake. Bowman Road, also known as USFS Road 18, transitions back and forth from occurring on private land to NFS land managed by the Forest Service to private land. Long segments of the road are on Sierra Pacific Industries (SPI) land with segments also on land owned by NID. Spur roads from Bowman Road access Fuller Lake, portions of the Bowman-Spaulding Canal (BSC) and Bowman-Spaulding Transmission Line, and Bowman Dam and Powerhouse.

Fuller Lake is accessed via Fuller Lake Dam Access Road (gated and on private land) that connects Bowman Road to Fuller Lake Dam and the Zion Hill Tunnel Outlet.

Licensee maintains vehicular access along the open sections of the BSC. This access is gated and entirely within the FERC Project Boundary. The road is usually referred to as the BSC Berm Road, with one segment sometimes referred to as the Box Car Section Road. Access to the Bowman-Spaulding Tunnel and BSC Berm Road is via six roads that connect with the Bowman Road. Running upstream, these are: 1) USFS Road 18-4, 2) Camp 19 Road, 3) USFS Road 18-14, 4) USFS Road 18-18, 5) Texas Creek Diversion Access Road, and 6) USFS Road 18-21.

The Bowman Road intersects frequently with the Bowman-Spaulding Transmission Line, which provides easy access to the line.

Access to the Bowman Powerhouse and Dam can also be made from Bowman Road. The Bowman Powerhouse Access Road is located near the southwest side of Bowman Lake; it is gated and extends from Bowman Road to the powerhouse.

Sawmill, Faucherie, and Jackson lakes are accessed from County Road 122 (Meadow Lake Road, NEV-843), which runs along the north side of Bowman Lake and then intersects with Graniteville Road (Nev-956). Sawmill and Faucherie lakes access is from County Road 122-80 (USFS Road 843-37), which extends from Meadow Lake Road to Faucherie Lake Access Road. Sawmill and Faucherie lakes are accessed via short spur roads - USFS-843-37-2 and USFS Road 843-37-8, respectively. Jackson Lake is accessed via a private road off Meadow Lake Road. French Lake, located in a TNF Roadless Area, is accessed via a gated spur road (USFS Road 843-20).

Jackson Meadows Reservoir can be accessed via Graniteville Road (Nev-956) and the Fiberboard/Henness Pass Road (USFS 7), which connects to State Highway 89, seventeen miles north of Truckee.

Milton Diversion Dam is accessed from the Henness Pass Road (USFS Road 301). A spur road (USFS Road 301-45) provides access to the Middle Yuba River below Jackson Meadow Dam for Licensee. The Pipeline/Outlet Access Road exits Henness Pass Road near the Milton Diversion Dam and extends to the Wilson Creek Diversion.

11.1.2 Dutch Flat Development

From Licensee's Project office in Colfax, access to the Dutch Flat Development is from three highways: Magra Road (U.S. 40), U.S Interstate 80, and Ridge Road (U.S 40). Ridge Road connects with Sacramento Street, which becomes Main Street in the community of Dutch Flat. From Main Street, access can be found by proceeding either north along Diggins Hill Road to Dutch Flat Afterbay, Dutch Flat No. 2 Powerhouse, and Dutch Flat No. 2 Forebay or northeast along Drum Powerhouse Road to the Dutch Flat No. 2 Flume.

The Diggins Hill Road connects to the Dutch Flat Afterbay Dam and Dutch Flat No. 2 Powerhouse on the north side of the afterbay. The road is not gated and on private land.

The Drum Powerhouse Road, which includes two segments on NFS land, terminates at the Drum Powerhouse (Pacific Gas and Electric Facility). The Dutch Flat No. 2 Flume Intake Access Road is a spur off of the Drum Powerhouse Road that is gated and extends to the intake. Access to the Dutch Flat Flume Alarm "B" is from a gated road off the Drum Powerhouse Road.

From Dutch Flat No. 2 Powerhouse, access to the Dutch Flat No. 2 Forebay is via the Dutch Flat No. 2 Forebay Road. One spur road occurs off of the Dutch Flat No. 2 Forebay Road. The Stump Canyon Outlet Access Road is gated at Dutch Flat No. 2 Forebay. The road is used to access the outlet of the Stump Canyon Siphon along the berm side of the canal section between the Dutch Flat No. 2 Forebay and the outlet of the Stump Canyon Siphon.

The Dutch Flat No. 2 Forebay access road ends at Lowell Hill Road. Lowell Hill Road is a county road used to access two spur roads leading to the following facilities: "A" Alarm Road on the Chicago Park Flume to the south, and the Stump Canyon Road to the north. Neither road is gated. The "A" Alarm Road is on private land, and the Stump Canyon Access Road has two short segments on federal land.

11.1.3 Chicago Powerhouse Development

From Licensee's Project office in Colfax, the Chicago Park Development is accessed over a County Road (Secret Town Road) and then via a series of other roads. The first road is Chicago Park Powerhouse Road, which extends from Secret Town Road to Chicago Park Powerhouse. Two short segments of Chicago Park Powerhouse Road are located on federal land managed by BLM. A short spur road connects Chicago Park Powerhouse Road and the powerhouse. The road is gated.

The second road is Chicago Park Forebay Road, which runs from Chicago Park Powerhouse Road to Little York Basin Access Road. The road is gated at each end and located on federal land managed by BLM. About midway, a short spur road on BLM-managed land extends to the Chicago Park Forebay Dam and Microwave Station.

Little York Basin Access Road extends from the gated Chicago Park Forebay Road to Little York Basin. A short spur road connects Little York Basin Access Road to the Chicago Park Flume. These roads are located on private land and not gated.

11.1.4 Rollins Development

From Licensee's Project office in Colfax, the Rollins Development is accessed using three highways: Magra Road (U.S. 40), Rollins Lake Road (U.S. 40), and Colfax Highway (State Highway 174). Access to the Project Area is from three routes off these highways. The first access point leads to Rollins Dam and Spillway along Rollins Dam Spillway Access Road. This dirt road exits Rollins Lake Road near the southeast shoreline of Rollins Reservoir. The road is used by private landowners and is gated at the entrance to the road and again about 0.1 mile along the road. The road traverses the edge of Rollins Reservoir, crosses Rollins Dam and ends at Rollins Spillway.

The second access route leads to Rollins Powerhouse along Old Bridge Road, which is privately owned and exits Colfax Highway 174 south of the Bear River. The paved road is gated at the entrance and used by private landowners. The road is gated again a few hundred feet from Rollins Powerhouse.

The third access point is Orchard Springs Road, a county road, off Colfax Highway on the northwest side of Rollins Reservoir. The paved Orchard Springs Campground road leads to camping and boating facilities on Rollins Lake. A short, cable gated spur road leads to NID's Rollins Microwave Station.

11.2 Helicopter Landing Areas within the Project Boundary

While all Project Facilities may be accessed by road, fire suppression activities may require the use of helicopters. The following locations are available as landing sites that may be used in response to fire suppression activities. These sites are also shown on figures in Attachment E.

- Jackson Meadows Reservoir – Landing site adjacent to the right abutment of Jackson Meadows Dam at the borrow pit
- Bowman Lake – Helipad located approximately 1,000 feet downstream of Bowman Lake Dam, south of the Bowman Lake Tenders House
- French Lake – Landing site adjacent to the left abutment of French Lake Dam
- Faucherie Lake – Landing site on Faucherie Lake Dam
- Jackson Lake – Landing site on Jackson Lake Dam

- Rollins Reservoir – Landing site adjacent to Rollins Reservoir Dam (landing on Rollins Reservoir Dam is not possible due to overhead lines).

11.3 Fire Suppression Equipment and Personnel

NID does not own fire suppression equipment suitable for combating wildland fires (e.g., fire trucks, helicopters). Fire suppression equipment owned by NID within the Project Area primarily consists of fire extinguishers located at all Project buildings and in employee vehicles. Other fire suppression equipment owned by NID is located at the Secret Town office and consists of a water trailer, back-pack water tanks, shovels, picks, and axes. This equipment is deployed along with NID work crews that are participating in activities that require fire suppression equipment above and beyond hand-held extinguishers (e.g., welding, transmission line repair, use of heavy equipment).

While equipment for suppression is limited, water from all Project reservoirs and canals is available to agencies responding to wildland fires in the vicinity of the Project. These water drafting sites are shown on the figures in Attachment E.

While NID does not retain qualified personnel available for fire suppression duties, NID does have personnel available to provide technical information/support for Forest Service fire operations in and adjacent to the Project. NID employees and contractors will immediately respond to fires that are a result of their activities, if the circumstances permit the safe containment and extinguishment of the fire.

12.0 Investigation of Project-Related Fires

NID agrees to fully cooperate with the proper authorities on all fire investigations. NID shall produce, upon request, all materials and witnesses not subject to the attorney-client or attorney-work product privileges, over which NID has control, related to the fire and its investigation including:

- All investigation reports
- All witness statements
- All photographs
- All drawings
- All analysis of cause and origin
- All other, similar materials and documents regardless of how collected or maintained

NID shall preserve all physical evidence and give custody to the proper authority all physical evidence requested. NID shall have reasonable access to the physical evidence and documents NID requires in order to defend any and all claims, which may arise from a fire resulting from Project operations, to the extent such access is not precluded by ongoing criminal or civil litigation.

13.0 Key Personnel Contact Directory

13.1 Forest Service Contacts - Tahoe National Forest

TNF fire management contacts for non-emergency Project vegetation or fire related issues:

- TNF Supervisor's Office: (530) 265-4531
- Yuba River Ranger District: (530) 288-3231
- Sierraville Ranger District: (530) 994-3401

13.2 Bureau of Land Management Contacts

BLM fire management contacts for non-emergency Project vegetation or fire related issues at the BLM Mother Lode Field Office: (916) 941-3101

- Jerry Martinez, Fire Management Officer
- Brian Mulhollen, Fuels Management Specialist

13.3 NID Contacts – Yuba-Bear Hydroelectric Project

NID supervisory personnel:

- William Morrow, Hydropower Manager: (530) 273-8571 ext. 13
- Travis Harrison, Hydropower Generation Supervisor: (530) 273-8571 ext. 14
- Jim Ford, Hydropower Maintenance Supervisor: (530) 273-8571 ext. 16

14.0 References Cited

California Department of Forestry and Fire Protection (CAL FIRE). 2007. Nevada-Yuba-Placer Fire Management Plan 2005.

_____. 2010. 2010 strategic fire plan for California. State Board of Forestry and Fire Protection.Available online: <http://cdfdata.fire.ca.gov/fire_er/fpp_planning_cafireplan>. Accessed January 10, 2011.

Davidson, Peggy. Nevada Irrigation District (NID). Phone conversation with Justin Tortosa, Senior Scientist. January 26, 2011.

State of California, Public Resource Codes, Section 4291-4299.

United States Department of Agriculture (USDA), Forest Service (Forest Service). 1998. Land and Resource Management Plan. USDA Forest Service. Pacific Southwest Region. Tahoe National Forest.

_____. 2001. Sierra Nevada Forest Plan Amendment. Final Environmental Impact Statement. USDA Forest Service. Pacific Southwest Region. January 2001. Six Volumes.

_____. 2004. Fire Management Manual. Available online <http://www.fs.fed.us/im/directives/fsm/5100>

_____. 2004. Sierra Nevada Forest Plan Amendment, Final Supplemental Environmental Impact Statement and Record of Decision. United States Department of Agriculture--Forest Service, Pacific Southwest Region.

_____. 2008. Fire Management Plan. USDA Forest Service. Pacific Southwest Region. Eldorado National Forest.

_____. 2010. Forest Service Region 5 Fire and Aviation Management. TNF_Fire History 09_Origins. USDA Forest Service. McClellan, CA.

United States Department of Interior (USDOI), Bureau of Land Management (BLM). 2008. Sierra Resource Management Plan and Record of Decision, USDOI Bureau of Land Management Folsom District, Folsom, CA.

Wildland Fire Leadership Council. 2003. Interagency strategy for the implementation of federal wildland fire management policy. USDA Forest Service, Bureau of Indian Affairs, Bureau of Land Management, Fish and Wildlife Service, National Park Service. April 21, 2004. Washington, D.C.

Yuba-Bear Hydroelectric Project
FERC Project No. 2266-096

Amended Fire Prevention and Response Plan

Attachment A

Tahoe National Forest Project Activity Levels

THIS FIRE PLAN IS MADE A PART OF:

_____

(Ref: FSH 6309.32 and 6309.11)

1.0 SCOPE

- The provisions set forth below outline the responsibility for fire prevention and suppression activities and establish a suppression plan for fires within the contract area _____. The project area is delineated by map in the project file. The provisions set forth below also specify conditions under which project activities will be curtailed or shut down. It is not uncommon for the Tahoe National Forest to impose fire restrictions during the summer and fall months when high fire danger conditions exist. During such times, the use of campfires, barbeques, fireworks, smoking, welding, blasting, and internal combustion engines is prohibited as per the conditions of the Forest Order. This plan provides for the means to be exempt from the forest order governing fire restrictions provided to _____, their cooperators, operators, contractors, etc. follows the elements of this Fire Plan. A deviation from this plan may warrant the Forest Service's revocation of the exemption.
- Any request for a variance from the Project Activity Level (PAL) must be made by _____ to the Forest Service. If a PAL variance is granted by the Forest Service it will allow for continued operations on "B", "C", and "D" days, and until 1:00 PM during "Ev" days when appropriate mitigations are used for specific project sites. In considering a request for a variance, the Forest Service will ascertain fire danger indices, current and predicted fire weather, and the availability of fire suppression resources, as well as the existing conditions of the project area before granting the variance.

2.0 RESPONSIBILITIES

A. _____ and their cooperators, operators, and contractors, hereby referred to as Contractor:

1) Shall abide by the requirements of this Fire Plan.

2) Shall take all steps necessary to prevent his/her employees, subcontractors and their employees from setting fires not required in completion of the contract, shall be responsible for preventing the escape of fires set directly or indirectly as a result of project operations, and shall extinguish all such fires which may escape.

3) Shall permit and assist in periodic testing and inspection of required fire equipment. Contractor shall certify compliance with specific fire precautionary measures in the fire plan, before beginning operations during Fire Precautionary Period (May 15 to November 1) and shall update such certification when operations change.

4) Shall designate in the fire plan and furnish on Contract Area during operating hours a qualified fire supervisor authorized to act on behalf of Contractor in fire prevention and suppression matters.

5) Shall complete the Contractor's Plan Regarding Personnel and shall furnish the Authorizing Officer (AO) or the AO designated representative with a copy prior to commencing work at the site. Shall currently advise the AO of any changes in personnel as the changes occur. Shall revise Section 6.B of this fire plan to reflect current activities upon request of the AO.

B. Forest Service

The Forest Service may conduct one or more inspections for compliance with the fire plan. The number, timing, and scope of such inspections will be at the discretion of the Forest Service. Such inspections do not relieve the Contractor of responsibility for correcting violations of the fire plan or for fire safety in general, as outlined in paragraph 2.A above.

3.0 TOOLS AND EQUIPMENT

A. The Contractor shall comply with the following requirements during the fire precautionary period as defined by the Forest Service unless waived in writing:

The Fire Precautionary Period is May 15 to November 1.

Contractor shall equip each operating tractor and all equipment with internal combustion engine with a spark arrester, except for motor vehicles equipped with a maintained muffler as defined in C.P.R.C. Section 4442 or equipment with exhaust-operated turbochargers. Spark Arresters shall be a model tested and approved under Forest Service Standard 5100-1a as shown in the National Wildlife Coordinating Group Spark Arrester Guide, Volumes 1 and 2, and shall be maintained in good operating condition.

Contractor shall meet minimum requirements of Sections 4427 and 4428 of the C.P.R.C. Fire tools kept within the Project Area shall be sufficient to equip all employees in the felling, loading, chipping, and material processing operations associated with the project. Fire equipment shall include two tractor headlights for each tractor dozer used in contractor's operations. Tractor headlights shall be attachable to each tractor and served by an adequate power source.

Each Truck, tractor, pickup and other similar mobile equipment shall be equipped with and carry at all times a size 0 or larger shovel with an overall length of not less than 46 inches, a fire extinguisher, 10 B:C 4 pound or greater, and a 2-1/2 pound axe or larger with an overall length of not less than 28 inches.

Contractor shall equip each piece of equipment with an internal combustion engine such as an excavator, chipper, dozer, fuel truck, with a fire extinguisher for oil and grease fires (4-A:60-B:C).

In addition, concentrations of organic combustible debris shall be removed from such equipment daily. Additional extinguishers and sizes may be required in accordance with Section 5.

Each power saw shall be equipped with a spark arrester approved according to C.P.R.C. Section 4442 or 4443 and shall be maintained in effective working order. One fire extinguisher meeting specifications of C.P.R.C. Section 4431 shall be kept with each operating power saw. A size 0 or larger shovel with an overall length of not less than 38 inches shall be kept with each gas can but not more than 300 feet from each power saw when used off cleared landing areas.

Contractor shall meet minimum requirements of Section 4430 of the California Public Resources Code (C.P.R.C.)**.** Contractor shall provide a water tank truck or trailer on or in proximity to project area during contractor's operations hereunder during Fire Precautionary Period unless otherwise agreed, in writing, in advance.

When Project Activity Level (PAL) B or higher is in effect, a tank truck or trailer shall be on or immediately adjacent to the project area unless otherwise agreed to in writing, in advance. See Section 5 for specific requirements.

The tank truck or trailer shall contain at least 300 gallons of water available solely for fire suppression. A water sprinkling tank truck will meet this requirement if provision is made to insure that the minimum of 300 gallons is available for fire suppression at all times. Ample power and right-sized hitch shall be readily available for promptly and safely moving tank trailer over roads serving the project area. Tank truck or trailer shall be equipped with following:

1) Pump, which at sea level, can deliver 23 gallons per minute at 175 pounds per square inch measured at the pump outlet. Pumps shall be tested on Project Area using a 5/16 inch orifice in the Forester One Inch In-Line Gauge test kit. Pump shall meet or exceed the pressure value in the following table for nearest temperature and elevation:

Temp	**Sea Level**		**1000 Feet**		**2000 Feet**		**3000 Feet**		**4000 Feet**		**5000 Feet**		**6000 Feet**		**7000 Feet**		**8000 Feet**		**9000 Feet**		**10000 Feet**	
55	179	23	174	23	169	23	165	22	161	22	157	22	153	22	150	21	146	21	142	21	139	21
70	175	23	171	23	166	22	162	22	158	22	154	22	150	21	147	21	143	21	139	21	136	20
85	171	23	168	23	163	22	159	22	155	22	151	21	147	21	144	21	140	21	136	20	133	20
100	168	23	164	23	159	22	155	22	152	22	148	21	144	21	141	21	137	20	133	20	131	20
	PSI	GPM	PSI	GPM	PSI	GPM	PSI	GPM	PSI	GPM	PSI	GPM	PSI	GPM	PSI	GPM	PSI	GPM	PSI	GPM	PSI	GPM

The pump outlet shall be equipped with 1-1/2 inch National Standard Fire Hose thread. A bypass or pressure relief valve shall be provided for other than centrifugal pumps.

2) 300 feet of 3/4-inch inside diameter rubber-covered high-pressure hose mounted on live reel attached to pump with no segments longer than approximately 50 feet,

when measured to the extreme ends of the couplings. Hose shall have reusable compression wedge type 1-inch brass or lightweight couplings (aluminum or plastic). One end of hose shall be equipped with a coupling female section and the other end with a coupling male section. The hose shall, with the nozzle closed, be capable of withstanding 200 PSI pump pressure without leaking, distortions, slipping of couplings, or other failures.

3) A shut-off combination nozzle that meets the following minimum performance standards when measured at 100 P.S.I. at the nozzle:

	G.P.M.	Horizontal Range
Straight Stream	10	38 feet
Fog Spray	6 - 20	N/A

4) Sufficient fuel to run pump at least 2 hours and the necessary service accessories to facilitate efficient servicing and operation of the pump.

5) When Contractor is using Hot Saw Technology, an additional 500 feet of not less than one (1) inch outside diameter serviceable hard rubber poly or rubber lined or fiber jacket rubber lined (FJRL) hose shall be immediately available for use and be capable of connecting to the 300 feet of hose and appurtenances in (2) and (3) above. Synthetic hose may be used by agreement.

B. The Contractor shall comply with the following requirements during the fire precautionary period and while Blasting :

1) Provide and maintain in serviceable condition the following equipment, tools, and personnel on site during and following any explosives use as identified below:

a. One serviceable size "O" or larger round point 46 inches in overall length (or longer) shovel per person and/or vehicle at the blasting site.

b. An additional fire suppression vehicle or trailer meeting the criteria above must be on the project area during blasting operations. The vehicle/trailer must have 300 feet of 1.5” and 300 feet of 1” hose. The hose shall have a wildland rating with National Hose (NH) thread on the 1.5” hose, and National Pipe Straight Hose (NPSH) hose thread on the 1” hose. 1- 1” nozzle and 1-1.5” nozzle, 1-1.5” to 1” reducer adapter NH to NPSH, and one 1.5” gated wye (NH).

c. A minimum of two full 5-pound ABC fire extinguishers with the explosives and one full 5-pound ABC fire extinguisher on hand (within 25 feet of the blasting site) for immediate use.

d. A sealed box of tools shall be located at a point accessible in the event of fire. This toolbox shall contain: one full 5-gallon backpack pump type fire extinguisher, two axes, two McLeod fire tools and a sufficient number of shovels so that each employee can be equipped to fight fire. Each person shall have a serviceable size "O" or larger round point 46 inches in overall length (or longer) shovel.

e. One or more operable chain saws of three and one-half horsepower with a cutting bar 20 inches in length or longer shall be immediately available within the project area.

f. One patrol person that is capable to take action to suppress fire and call for emergency services.

g. Communication system and devices, and staff, that is immediately capable of obtaining additional emergency services.

h. Ground around magazines shall slope away for drainage. The land surrounding magazines shall be kept clear of brush, dried grass, leaves, and other materials for a distance of at least 25 feet, 29 CFR 1910.109(c)(1)(iii)

i. Smoking, matches, open flames, spark-producing devices, and firearms (except firearms carried by guards) shall not be permitted inside of or within 50 feet of magazines. The land surrounding a magazine shall be kept clear of all combustible materials for a distance of at least 25 feet. Combustible materials shall not be stored within 50 feet of magazines, 29 CFR 1910.109(c)(5)(vii)

4.0 GENERAL

A. **State Law**. The Contractor shall comply with all applicable laws of the State of California. In particular, see California Public Resource Codes.

B. **Permits Required**. The Contractor must secure a special written permit from the District Ranger or designated representative before engaging in any of the activities listed below. The terms and conditions of the following permits required for this project are available from the American River Ranger District.

1) Blasting and Storage of Explosives and Detonators. (Explosives Permit required by California Health & Safety Code, Section 12101.)

2) Burning.

3) Air Pollution. (Issued by local State or County Air Pollution Control Districts, as applicable.)

4) Camp, Lunch and Warming Fires.

5) Welding and Cutting.

C. **Regulations for Burning**. Before setting any fires whatsoever, the Contractor shall notify the Authorizing Officer (AO) of his/her intentions. Special care shall be taken to prevent scorching or causing any damage to adjacent structures, trees, and shrubbery. Piles of material to be burned shall be of such size and so placed that during burning no damage shall result to adjacent objects.

D. **Smoking and Fire Rules**. Smoking shall not be permitted during fire season, except in a barren area or in an area cleared to mineral soil at least three feet in diameter

(CPRC 4423.4). In areas closed to smoking, the AO may approve special areas to be used for smoking. The Contractor shall sign designated smoking areas. Contractor shall post signs regarding smoking and fire rules in conspicuous places for all employees to see. Contractor's supervisory personnel shall require compliance with these rules. Under no circumstances shall smoking be permitted during fire season while employees are operating light or heavy equipment, or walking or working in grass, woodlands, and forested lands.

E. **Storage and Parking Areas**. Equipment service areas, parking areas, and gas and oil storage areas shall be cleared of all flammable material for a radius of at least 10 feet unless otherwise specified by the Forest Service. Small mobile or stationary internal combustion engine sites shall be cleared of flammable material for a slope distance of at least 10 feet from such engine. The AO shall approve such sites in writing in advance of use.

F. **Welding**. Contractor shall confine welding activity to cleared areas having a minimum radius of ten feet measured from place of welding.

G. **Blasting**. Notification must be made to Grass Valley Emergency Command Center prior to 9 AM each day blasting is to take place by calling (530) 478-6111. The Forest Service shall agree with blasting plan and methods in advance of implementation, in writing. When blasting is necessary in areas containing forested land or slash, a patrol person equipped with a size 0 or larger shovel with an overall length of not less than 46 inches and a filled backpack can (5 gallon) with hand pump shall remain in the immediate area for 2 hours after blasting has been completed.

H. **Oil Filter and Glass Jugs**. Contractor shall remove from National Forest lands oily rags and used oil filters and shall prohibit use of glass bottles and jugs in Contractor's Operations.

I. **Reporting Fires**. As soon as feasible but no later than 15 minutes after initial discovery, Contractor shall notify Forest Service of any fires on Project Area or along roads used by Contractor.

J. **Communications**. Contractor shall furnish a serviceable telephone, radio-telephone or radio system connecting the Project Area with _____ or the Contractor's headquarters, and emergency services. When such headquarters is at a location which makes communication to it clearly impractical, Forest Service may accept a reasonable alternative location. The communication system shall provide prompt and reliable communications between Contractor's headquarters (or agreed to alternative) and Forest Service via commercial telephone. The communications system shall be operable during Contractor's Operations in Fire Precautionary Period described in Section 3 and at any time a fire patrolperson is required by Project Activity Level. See Section 5 for other communication requirements when operating on PAL “D” and “Ev” days with hot saw technology. A CB radio is not acceptable communication because FCC Regulations prohibit commercial use.

K. **Fire Patrol Person**. Contractor shall furnish a qualified fire patrolperson each operating day when Project Activity Level B or higher is in effect. When on duty, the sole responsibility of patrolperson shall be to patrol the project area for prevention and detection of fires, take suppression action where necessary and notify the Forest Service as required by Section 5.

By agreement, one patrolperson may provide patrol on this and adjacent project areas. No patrolperson shall be required on Specified Road construction jobs except during clearing operations unless otherwise specified.

L. **Time of Snag Felling.** Felling of dead trees shall be concurrent with the felling of live trees.

M. **Clearing of Fuels.** Contractor shall clear away, and keep clear, fuels and all organic combustible debris such as slash, as follows:

Welding equipment and stationary log loaders, yarders and other equipment listed in California State Law	10 feet slope radius
Blasting	25 feet slope radius

5.0 EMERGENCY MEASURES

The table set forth below establishes work restrictions and fire precautions that the Contractor must observe at each project activity level. The restrictions are cumulative at each level.

The Forest Service, in its sole discretion, may change the predicted activity level if the current fire suppression situation, weather and vegetation conditions warrant additional restriction of activities. Contractor shall obtain the predicted Project Activity Level by calling the following phone number (530) 367-2224 before starting work each day. If practicable, Forest Service will determine the following day's activity level by 6:00 PM local time. If predictions made after 6:00 PM are significantly different than originally estimated, Forest Service will inform Contractor when changes in restrictions or industrial precautions are indicated.

The following definitions shall apply to these Project Activity Levels:

Sunset: The time that sunset is reported in the local newspaper for that day. Except for Project Activity Level days "Ev after 1:00 PM local time" and "E", Forest Service may issue substitute precautions(s) of the requirements below. Such agreements shall prescribe measures to be taken by Contractor to reduce risk of ignition and/or spread of fire.

Forest Service may change the Project Activity Levels to other values upon revision of the National Fire Danger Rating System and may change the specific Project Activity Levels and/or requirements when such changes are necessary for the protection of the National Forest. When sent to Contractor, the revised Project Activity Levels will supersede the levels below.

The Weather Station determining PAL for this project will be _____

PROJECT ACTIVITY LEVEL –EMERGENCY PRECAUTIONS

Table version 6/13/2006

PROJECT ACTIVITY LEVEL

Level	Project Activity Requirements
A	Minimum required by Section 3 1. PAL levels are cumulative, Ev level would include all preceding PAL requirements.
B	1. A fire patrolperson is required for mechanical operations from cessation of operations until 2 hours after operations cease or sunset, which ever occurs first. 2. Tank truck or trailer shall be on or adjacent to each operating area. 3. When hot saw technology is being used, the tank truck or trailer (B2 above) may serve dual purpose as active landing tank truck provided it shall be kept readily available for use as follows: a. Within one quarter mile of the operating hot saw technology; and b. Within 10 minutes of each operating area; and c. Effective communications exist between hot saw technology and active landing. Otherwise, there shall be a tank truck or trailer at both the active landing and within one quarter mile of the operating hot saw technology. 4. (Additional restrictions specified by the forest.)
C	1. The following operations are prohibited from 1:00 PM until 8:00 PM local time: a. Blasting 2. Operations using hot saw technology are prohibited between 1:00 PM and sunset local time. Hot saw technology operations may continue if Contractor provides a portable fire suppression system capable of extinguishing a 20-foot by 20-foot wild land fire within five (5) minutes of discovery. The following equipment will meet the requirements above: a. Compressed Air Foam System with minimum requirements of 20 gallons stored energy, 100 feet of 1 inch hose and adjustable 1 inch nozzle, minimum discharge range of 60 feet and 1 spare air cylinder; or b. All terrain tank truck or equivalent capable of traveling throughout the cutting unit, containing not less than 300 gallons of water and complies with all tank truck requirements of Section 3. All terrain tank truck or equivalent may serve dual purpose as active landing tank truck provided: 1) Tank truck or equivalent shall be kept readily available to extinguish a fire within 5 minutes of discovery of the operating hot saw technology, 2) Tank truck or equivalent shall be no further than 10 minutes travel time to the active landing, 3) A 4-A:80-B:C extinguisher is maintained at the landing fire tool box and, 4) Effective communications exist between the hot saw technology, active landing and all terrain tank truck or equivalent. Otherwise there shall be a tank truck at the active landing and an all terrain tank truck or equivalent with the hot saw technology. 3. (Additional restrictions specified by the forest.)
D	1. The following restrictions apply: a. No blasting after 10:00 AM b. Welding or cutting of metal only by special permit c. No Burning without a permit 2. The following activities may not operate after 1:00 PM local time unless fire patrolperson(s) walks all areas operated that day once per hour until sunset local time and has the capability of notifying the designated Forest Service Dispatch Center within fifteen (15) minutes of discovery of a fire: a. Track-laying equipment b. Chipping outside of landings and roadbeds c. Equipment using Hot Saw Technology d. Chainsaw operations outside of landings and roadbeds e. Tree felling operations f. Ripping roads and landings g. Mastication h. Cable-yarding employing motorized carriages. 3. (Additional restrictions specified by the forest.)

Level	Project Activity Requirements
Ev	1. The following operations are prohibited: a. Blasting b. Welding or cutting metal c. Burning 2. Following activities may operate when fire patrolperson walks from 9:00 AM until local sunset all areas once per hour that were mechanically operated that day. 3. Activities that may operate all day: a. Hauling and loading of logs decked at approved landings. b. Hauling and loading of chips piled at approved landings. c. Equipment servicing at approved sites. 4. Roads: Dust abatement or rock aggregate installation (does not include pit or quarry development) 5. Chainsaw or stroke delimber operation associated with loading at approved landing sites. 6. All other Operations are permitted until 1:00 PM local time subject to the following: a. When hot saw technology is being used a tractor or other equipment with blade capable of constructing fire line, shall be on standby and immediately available. Tractor will have effective communications with hot saw technology and be within one quarter mile of hot saw technology to quickly reach and effectively attack a fire start. 7. (Additional restrictions specified by the forest.)
E	The following activities may operate subject to B1. and B2. Hauling and loading of logs decked at approved landings. Hauling and loading of chips piled at approved landings. Equipment at approved sites may be serviced. Roads: Dust abatement or rock aggregate installation (does not include pit development). Chainsaw operation associated with loading at approved landings.

1. REPORTING ALL WILD FIRES

A. Contractor's employees shall report all fires as soon as possible, but no later than 15 minutes after initial discovery to any of the following Forest Service facilities and/or personnel listed below, but not necessarily in the order shown:

Location	Name	Office Address and/or telephone	Home address and/or telephone
Dispatch Center	Grass Valley ECC	(530) 478-6111	
Forest Service Stations	Camptonville Ranger Station	(530) 288-3231 or (530) 478-6253	
Forest Service Stations	Sierraville Ranger Station	(530) 994-3401	
Inspector			
Permit Administrator			
District Ranger			
D.R. Designated Rep	Duty Officer		

When reporting a fire, provide the following information:

- Your name
- Call back telephone number
- Project name
- Location
  - Legal description (township, range, section) or GPS location
  - Descriptive location (reference point)
- Fire information
  - Acres

- Rate of spread
- Wind conditions

B. **Contractor's Plan Regarding Personnel.** The Contractor shall, prior to commencing work, furnish the following information relating to key personnel.

Title	Name	Address and/or telephone
Fire Supervisor		
Fire Patrolperson		

Yuba-Bear Hydroelectric Project
FERC Project No. 2266-096

Amended Fire Prevention and Response Plan

Attachment B

Instructions and Agency Checklist for Determining Project Activity Levels Variances

Instructions for Determining Variances for Continued Operations within Specific Units and With a Specific Time Frame

1. Variances are in **addition** to the stated requirements for the Predicted Activity Level.
2. The Line Officer in consultation with the Forest Fire Management Officer or his/her representative will evaluate the items in the above check list as they relate to the existing and planned activities, add any mitigation measures as needed and the Line Officer will advise the Contracting Officer to execute the variance. The name of the Fire Management Representative and the Line Officer involved must be filled in but a signature is not required.
3. The delegated authority can be at the FSR/COR level since they would usually have more knowledge of the ground and access to the District Ranger.
4. The project area should be evaluated for differences in potential fire activity if a fire starts. This could necessitate the use of multiple forms. Examples of this would be units on a north slope near riparian areas vs. Those on south slopes that would be dryer and expected to have more severe fire conditions or there is a significant difference from the predicted PAL and the actual conditions.
5. The Purchaser/Contractor or their representative should be consulted when determining types of variances that are being considered. They might be able to come up with other options.
6. Examples of written variances are:
    A. Local assessment determines that existing precautions are adequate
    B. Use of specialized detection equipment such as an infrared detection device for locating heat sources is required
    C. Provide additional fire suppression resources (i.e. crews, equipment etc.) to achieve shorter response time.

PROJECT ACTIVITY LEVEL VARIANCE CHECKLIST

Project Name: _____

Contract Number: _____

Purchaser/Contractor Name: _____

Request #__, for period: _____

Units/Subdivisions Affected: _____

Location of Operation:	
Slope Aspect Elevation	
Fuels on site	
Fuels in surrounding area	
10 day Forecast	
Short range predictions (Red Flags)	
Fuel Moistures	
Response time of suppression resources	
Potential for ignition RAWS location	
Current Fire Situation:	
Draw down information	
National Readiness Level	
Contractual considerations:	
Operating Season	
Frequency of recent contract fires in area	
Type of operation	
Purchaser/Contractors past performance	
Other site specific mitigation or precaution (i.e. Purchaser/Contractors proposals)	

Social and Community Considerations:	
Proximity of high value resources	
Sensitivity of location	
Remarks:	

I have considered the above items and have determined the following actions must be implemented to continue operations in Project Activity Levels _____ through EV

☐ Fire Management Consulted _____

Name
Date _____

☐ Line Officer Concurred _____

Name
Date _____

Contracting Officer or Delegated Representative _____

Name
Date _____

Purchaser/Contractor Rep._____

Name
Date _____

Page Left Blank

Yuba-Bear Hydroelectric Project
FERC Project No. 2266-096

Amended Fire Prevention and Response Plan

Attachment C

Bowman-Spaulding Transmission Line Special Use Permit

File

Permittee

U.S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE
"Act of October 21, 1976 (P.L.94-579);
36 CFR 251.50, et. seq."

SPECIAL USE PERMIT

FOR ELECTRIC TRANSMISSION LINE

~~XXXXXXXXXXXXXXX~~

This permit is revocable and nontransferable

a. Record No. (1-2)	b. Region (3-4)	c. Forest (5-6)
70	PSW 05	Tahoe 17
d. District (7-8)	**e. User Number (9-12)**	**f. Kind of use (13-15)**
Nevada City 55	1022	POWERLINE 812
g. State (16-17)	**h. County (18-20)**	**k. Card no. (21)**
CA 06	Nevada 057	1

Nevada Irrigation District (Name) of P.O. Box 1019, Grass Valley, CA 95945

(hereafter called the permittee) is hereby authorized to use National Forest lands, for the construction, operation and maintenance of a 60 (Capacity) KV overhead transmission line within the Tahoe National Forest, subject to the general provisions and to the special provisions and requirements, items 23 to 56 on page(s) 3 to 9 attached hereto and made a part of this permit. The location of this use is shown on the map(s) which is (are) a part of this permit, and is (are) identified as follows:

EXHIBIT "A" dated 9/6/84

Length in: 25,178 (Miles) or (Feet) x Width 40 (Feet) = 23.12 (Acres)

Construction ~~XXXXXXXXXX~~ under this permit shall begin within 12 (Months) and construction shall be completed within 24 (Number) months.

Free 36 CFR 251.57b(4)

~~For this use, the permittee shall pay to the Forest Service, U.S. Department of Agriculture, the sum of _____ Dollars ($_____) from _____ 19__, to _____ 19__, and thereafter, annually on _____, _____ Dollars ($_____); provided, however, charges for this use may be made or readjusted whenever necessary to place the charges on a basis commensurate with the value of the use authorized by this permit.~~

This permit is accepted subject to all of its terms and conditions:

ACCEPTED	PERMITTEE'S NAME & SIGNATURE Ernst L Biemayer NEVADA IRRIGATION DISTRICT		DATE 5-22-85
APPROVED	ISSUING OFFICER'S NAME & SIGNATURE Len B. Larson	TITLE Forest Supervisor	DATE 6/10/85

2700-11 (S/72)

GENERAL PROVISIONS

1. Development plans; layout plans; construction, reconstruction, or alteration of improvements; or revision of layout or construction plans for this area must be approved in advance and in writing by the Forest Supervisor.

2. No timber shall be cut or destroyed during construction of the transmission line without first obtaining permission from the Forest Service. The permittee shall clear only the minimum area required for safe transmission line use. All timber cut, destroyed or injured shall be paid for at current stumpage rates applicable to the sale by the Forest Service of similar timber in the National Forest.

3. The permittee shall keep the area beneath the transmission line cleared and shall trim all branches in contact or near contact with the line. All trees, live or dead, deemed by the permittee to be hazardous or which might fall in contact with the line, whether on or adjacent to the right-of-way, shall be removed by the permittee: Provided, however, that permission to do so must first be obtained from the Forest Service.

4. All waste material from constructing or maintaining the line shall be burned or otherwise disposed of as directed by the Forest Service. However, no material shall be disposed of by burning during any closed season established by law or regulation without a written permit from the Forest Serviee.

5. The permittee shall protect the scenic and esthetic values of the right-of-way and the adjacent land as far as possible consistent with the authorized use, during the construction, operation, and maintenance of the facility.

6. The permittee shall be responsible for prevention and control of soil erosion and gullying on Government lands covered by this permit and lands adjacent thereto resulting from construction or maintenance of the transmission line; and shall vegetate with grass or herbaceous plants all ground where the soil has been exposed; and shall construct and maintain such preventive works to accomplish this result as prescribed in the erosion control plan attached, and made a part of this permit as EXHIBIT "X" dated 8/9/84.

7. The permittee shall place and maintain suitable structures and devices to reduce to a reasonable degree the possibility of contact between its powerline and telegraph, telephone, signal or other powerlines heretofore constructed and not owned by the permittee, and shall also place and maintain suitable structures and devices to reduce to a reasonable degree the possibility of any structures or wires falling and obstructing traffic or endangering life on highways or roads. The transmission line shall be designed and constructed in accordance with accepted standards (National Electrical Safety Code) and specifications for transmission lines of similar voltage, capacity, and purpose.

8. The permittee shall make provision, or bear the reasonable cost of making provision for avoiding inductive or conductive interference between any transmission facility or other works constructed, operated, or maintained by it and authorized under the permit, and any radio installation, telephone line, or other communication facilities existing when the permit is authorized or any such installation, line or facility thereafter constructed or operated by the United States or any agency thereof. This provision shall not relieve the permittee from any responsibility or requirement which may be imposed by other lawful authority for avoiding or eliminating inductive or conductive interference.

9. The permittee shall protect all Government and other telephone, telegraph, and power-transmission lines at crossings of and at all places in proximity to the permittee's power-transmission line or lines; and shall maintain said power-transmission line or lines in such a manner as not to menace life or property.

10. The permittee shall maintain the improvements and premises to standards of repair, orderliness, neatness, sanitation, and safety acceptable to the Forest Service.

11. The permittee, in exercising the privileges granted by this permit, shall comply with the regulations of the Department of Agriculture and all Federal, State, county, and municipal laws, ordinances, or regulations which are applicable to the area or operations covered by this permit.

12. The permittee shall do everything reasonably within its power and shall require its employees, contractors, and employees of contractors to do everything reasonably within their power, both independently and upon request of the Forest Service to prevent and suppress fires on or near the lands to be occupied under this permit.

13. ~~The permittee shall pay the United States for any damage resulting from this use.~~

14. The temporary use and occupancy of the premises and improvements herein described may be sublet by the permittee to third parties only with the prior written approval of the Forest Supervisor, but the permittee shall continue to be responsible for compliance with all conditions of this permit by persons to whom such premises may be sublet.

15. This permit is subject to all valid claims.

16. No Member of or Delegate to Congress or Resident Commissioner shall be admitted to any share or part of this agreement or to any benefit that may arise herefrom unless it is made with a corporation for its general benefit.

17. Upon abandonment, termination, revocation, or cancellation of this permit, the permittee shall remove within a reasonable time all structures and improvements except those owned by the United States, and shall restore the site, unless otherwise agreed upon in writing or in this permit. If the permittee fails to remove all such structures or improvements within a reasonable period, they shall become the property of the United States, but that will not relieve the permittee of liability for the cost of their removal and restoration of the site.

18. This permit is not transferable. If the permittee through voluntary sale or transfer, or through enforcement of contract, foreclosure, tax sale, or other valid legal proceeding shall cease to be the owner of the physical improvements other than those owned by the United States situated on the land described in this permit and is unable to furnish adequate proof of ability to redeem or otherwise re-establish title to said improvements, this permit shall be subject to cancellation. But if the person to whom title to said improvements shall have been transferred in either manner above provided is qualified as a permittee and is willing that his future occupancy of the premises shall be subject to such new conditions and stipulations as existing or prospective circumstances may warrant, his continued occupancy of the premises may be authorized by permit to him if, in the opinion of the issuing officer or his successor, issuance of a permit is desirable and in the public interest.

19. This permit may be terminated upon breach of any of the conditions herein by the issuing officer or at the discretion of the Regional Forester or the Chief, Forest Service; provided, the permittee shall have had a reasonable time–not to exceed ninety (90) days–within which to show cause why such termination should not be made.

20. This permit confers no rights upon the permittee to use this National Forest land for purposes other than constructing, maintaining, and operating a transmission line thereon.

21. The permittee shall allow officers and employees of the United States free and unrestricted access in, through, and across the said project and project works in the performance of their official duties and shall allow the Forest Service, without charge, to construct or permit to be constructed in, through, and across the said project, railroads, chutes, roads, trails, conduits, and other means of transportation not inconsistent with the enjoyment of said project by the grantee for the purpose herein set forth.

22. In the event of any conflict between any of the preceding printed clauses or any provision thereof and any of the following clauses or any provisions thereof, the following clauses will control.

23. The permittee shall indemnify the United States against any liability for damage to life or property arising from the occupancy or use of National Forest System lands under this permit.

24. The permitted area will be maintained to present a clean, neat, and orderly appearance. Trash, debris, unusable machinery, improvements, etc., will be disposed of currently. Building materials, firewood, etc., will be neatly stacked.

25. The permittee shall dispose of refuse resulting from this use, including waste materials, garbage, and rubbish of all kinds, in the following manner, and shall guard the purity of streams and waters: Haul to nearest sanitary landfill.

26. The permittee shall carry on all operations in a workmanlike manner, having due regard for the safety of employees and the public; and shall safeguard with warning signs, fences, barriers, fills, covers, or other effective devices, unsafe areas, including construction sites, pits, cuts, and other excavations which otherwise would unduly imperil the life, safety, or property of other persons. The permittee shall regularly inspect its facilities and provide further effective safety measures as needed for safety protection.

27. Avalanches, rising waters, high winds, falling limbs or trees, and other hazards are natural phenomena in the Forest that present risks to the permittee's property which the permittee hereby assumes. The permittee has the responsibility of inspecting its site, lot, right-of-way, and the immediate adjoining area for dangerous trees, hanging limbs, and other evidence of hazardous conditions and, after securing permission from the Forest Service, of removing such hazards.

28. The transmission line shall be designed and constructed in accordance with accepted standards and specifications for transmission lines of similar voltage, capacity, and purpose. The permittee shall place and maintain suitable structures and devices to reduce to a reasonable degree the likelihood of contact between its powerline and telegraph, telephone, signal, or other powerlines heretofore constructed and now owned by the permittee, and shall also place and maintain suitable structures and devices to reduce to a reasonable degree the likelihood of any structures or wires falling and obstructing traffic or endangering life on highways or roads, in a manner satisfactory to the Forest Service.

29. a. Only electronic detonators shall be used for blasting.

b. In the use of explosives, the permittee shall exercise the utmost care not to endanger life or property and shall comply with the requirements of the Forest Service. The permittee shall be responsible for any and all damages resulting from the use of explosives and shall adopt precautions that will prevent damage to surrounding objects. The permittee shall furnish and erect special signs to warn the public of permittee's blasting operations. Such signs shall be placed and maintained so as to be clearly evident to the public during all critical periods of the blasting operations, and shall include a warning statement to have radio transmitters turned off.

c. All explosives shall be stored in a secure manner, in compliance with State and local laws and ordinances, and all such storage places shall be marked "DANGEROUS - EXPLOSIVES." Where no local laws or ordinances apply, storage shall be provided which is satisfactory to the Forest officer in charge and in general not closer than 1,000 feet from the road or from any building or camping area.

d. When using explosives, the permittee shall adopt precautions which will prevent damage to landscape features and other surrounding objects. When directed by the Forest officer in charge, trees within an area designated to be cleared shall be left as a protective screen for surrounding vegetation during blasting operations. Trees so left shall be removed and disposed of after blasting has been completed. When necessary, and at any point of special danger, the permittee shall use suitable mats or some other approved method to smother blasts.

30. As a part of this permit, a schedule for the progressive development of the permitted site and installation of facilities shall be prepared jointly by the permittee and the Forest Service. Such a schedule shall set forth an itemized priority list of planned improvements and the due date for completion. This schedule shall be made a part of this permit. The permittee may accelerate the scheduled date for installation of any improvement authorized, provided the other scheduled priorities are met; and provided further, that all priority installations authorized are completed to the satisfaction of the Forest Service prior to the scheduled due date.

31. As a further guarantee of the faithful performance of the provisions of clauses 4, 6, 25, and 35 of this permit, the permittee agrees to deliver and maintain a surety bond in the amount of twenty five thousand dollars ($25,000). Prior to undertaking additional construction or alteration work not provided for in the above clauses or when the improvements are to be removed and the area restored, the permittee shall deliver and maintain a surety bond in an amount set by the Forest Service, which amount shall not be in excess of the estimated loss which the Government would suffer upon default in performance of this work. Should the sureties or the bonds delivered under this permit become unsatisfactory to the Forest Service, the permittee shall, within thirty (30) days of demand, furnish a new bond with

surety, solvent and satisfactory to the Forest Service. In lieu of surety bond, the permittee may deposit into a Federal depository, as directed by the Forest Service, and maintain therein, cash in the amounts provided for above, or negotiable securities of the United States having a market value at time of deposit of not less than the dollar amounts provided above.

The permittee's surety bond will be released, or deposits in lieu of bond will be returned, thirty (30) days after certification by the Forest Service that priority installations under the development plan are complete, and upon furnishing by the permittee of proof satisfactory to the Forest Service that all claims for labor and material on said installations have been paid or released and satisfied. The permittee agrees that all moneys deposited under this permit may, upon failure on the permittee's part to fulfill all and singular the requirements herein set forth or made a part hereof, be retained by the United States to be applied to the satisfaction of permittee's obligations assumed hereunder, without prejudice whatever to any other rights and remedies of the United States.

32. The project, including its construction and any work incident to additions or alterations, whether or not conducted upon lands of the United States, shall be subject to inspection and monitoring for permit and license compliance by officers of the Forest Service and the Federal Energy Regulatory Commission. The permittee shall furnish to said officers such information as may be required concerning the construction of the project, and of any alteration thereof, and shall notify the Forest officer in charge of the date upon which work with respect to any construction or alteration will begin, and as far in advance thereof as the Forest officer may reasonably specify, and shall notify him promptly in writing of any suspension of work for a period of more than one week, and of its resumption and completion. The permittee shall allow officers or employees of the United States, showing proper credentials, free and unrestricted access to, through, and across the project lands and project works in the performance of their official duties.

33. The permittee shall discharge no waste or by-product if it contains any subtances in concentrations which will result in violation of water quality standards set forth by the State; will impair present or future beneficial uses of water; will cause pollution, nuisance, or contamination; or will unreasonably degrade the quality of any waters. The permittee shall, during the construction of the project, protect project water quality by using the existing Best Management Practices mutually agreed to by the Forest Service and the State.

34. The permittee shall protect the scenic and esthetic values of the area under this permit, and the adjacent land during construction of the improvements.

35. The permittee shall take reasonable precautions to protect, in place, all public land survey monuments, private property corners, and Forest boundary markers. In the event that any such land markers or monuments are destroyed in the exercise of the privileges authorized by this permit, depending on the type of monument destroyed, the permittee shall see that they are reestablished or referenced in accordance with (1) the procedures outlined in the "Manual of Instructions for the Survey of the Public Land of the United States," (2) the specifications of the County Surveyor, or (3) the specifications of the Forest Service.

Further, the permittee shall cause such official survey records as are affected to be amended as provided by law.

36. Unless sooner terminated or revoked by the Forest Service in accordance with the provisions of the permit, this permit shall, subject to annual revalidation by the Forest Service and payment of fees by the permittee, expire and become void on December 31, 1986, but a new permit to occupy and use the same National Forest System land and for project operation will be granted, provided the permittee will comply with the then existing laws and regulations governing the occupancy and use of National Forest System lands.

37. The permittee shall clear designated parts of the powerline right-of-way and keep them clear as required by the Forest Service; shall trim all branches of trees in contact with or near the line; shall remove all dead snags and all trees which are leaning toward the line on or adjacent to the right-of-way; shall observe such other fire precautions as may be required by the Forest Service; and shall burn or otherwise dispose of all waste material to the satisfaction of the Forest Service. The clearing width shall be restricted to that necessary for safe transmission, unless the specific permission of the Forest Service for a greater clearing width is obtained. Refer to EXHIBIT "B" dated 9/6/84, attached to and made a part of this permit.

38. The permittee shall be held liable for all injury, loss, or damage, including fire suppression costs, directly or indirectly resulting from or caused by the permittee's use and occupancy of the area covered by the permit, regardless of whether the permittee is negligent or otherwise at fault, provided that the maximum liability without fault shall not exceed $1,000,000 for any one occurrence and provided further that the permittee shall not be liable when such injury, loss, or damage results wholly, or in part, from a negligent act of the United States, or an act of a third party not involving the facilities of the permittee.

Liability for injury, loss, or damage, including fire suppression costs, in excess of the specified maximum, shall be determined by the laws governing ordinary negligence.

Modification of this clause to remove permittee liability for criminal acts of third parties is anticipated. When and if approval for such modification is authorized by the Chief, Forest Service, this special-use permit, upon request of the permittee, will be modified accordingly.

The permittee does not, by executing this special-use permit, waive any rights which it might otherwise have to contest the validity or legal enforceability of the regulations, or any portions thereof, pursuant to which the right of way herein is granted.

39. This permit is issued on the condition that the permittee has secured, or will secure, the consent of any person having any valid claim to the land.

40. If, during excavation work, items of potential cultural, historical, archaeological, or paleontological value are discovered, or a known deposit of such items is disturbed, the permittee will cease excavation in the area so affected. The permittee will then notify the Forest Service and will not resume excavation until written approval is given.

41. The permittee agrees to permit the free and unrestricted access to and upon the premises at all times for all lawful and proper purposes not inconsistent with the intent of the permit or with the reasonable exercise and enjoyment by the permittee of the privileges thereof.

42. No signs or advertising devices shall be erected on the area covered by this permit, or highways leading thereto, without prior approval by the Forest Service as to location, design, size, color, and message. Erected signs shall be maintained or renewed as necessary to neat and presentable standards.

43. This permit is granted with the express understanding that should future location of Government improvements or road rights-of-way require the relocation of the permittee's linear-type improvements (such as transmission lines, penstocks, pipelines, ditches, roads), such relocation will be done by the permittee at permittee's expense within 180 days following written request to relocate.

44. The permittee, in the exercise of the privileges granted by this permit, shall require that its employees, sublessees, contractors, subcontractors, or renters and their employees comply with all applicable conditions of this permit and that the conditions of this permit be made a part of all subleases, contracts, subcontracts, or rental agreements.

45. This permit shall not be exclusive. The Forest Service reserves the right to use or permit others to use any part of the permitted area for any purpose, provided such use does not interfere with the rights and privileges hereby authorized.

46. Construction equipment shall not be placed on National Forest System land prior to actual use or be allowed to remain on National Forest System land subsequent to actual use, but shall be stored at or removed to private land; provided, that this will not preclude storage on National Forest System land under a permit issued for equipment storage.

47. The acquisition or assumption by another party under an agreement with the permittee of any right or obligation of the permittee under this permit shall be ineffective as to the Forest Service unless and until the Forest Service shall have been notified of such agreement and shall have recognized and approved it in a letter signed by the Forest officer who approved this permit, or by his successor or superior officer; and in no case shall such recognition or approval:

a. Operate to relieve the permittee of the responsibilities or liabilities the permittee has assumed hereunder; or

b. Be given unless such other party:

(1) Is acceptable to the Forest Service as a permittee, and assumes in writing all of the obligations to the Forest Service under the terms of this permit as to the incomplete portion thereof, or

(2) Acquires the rights in trust as security and subject to such conditions as may be necessary for the protection of the public interests.

48. Pesticides may not be used to control undesirable woody and herbaceous vegetation, aquatic plants, insects, rodents, trash fish, etc., without the prior written approval of the Forest Service. A request for approval of planned uses of pesticides will be submitted by the permittee. The report will cover annual planned use and be updated as required by the Forest Service. Information essential for review will be provided in the form specified. Exceptions to this schedule may be allowed only when unexpected outbreaks of pests require control measures which were not anticipated at the time the report was submitted, at which time an emergency request and approval may be made.

Only those materials registered by the U.S. Environmental Protection Agency for the specific purpose planned will be considered for use on National Forest System lands. Label instructions will be strictly followed in the preparation and application of pesticides and disposal of excess materials and containers.

49. In connection with the performance of work under this permit, including construction of the facility, the permittee shall not discriminate against any employee or applicant for employment because of race, color, religion, sex, national origin, age or handicap. (Ref. Title VII of the Civil Rights Act of 1964 as amended.)

50. Use under this permit may be suspended by the Forest Service for breach of any condition contained within. Continued use of the permit area or facilities thereon during suspension may result in cancellation of the permit.

51. A project fire plan describing the permittee's responsibilities for prevention and suppression of fires, developed by the permittee, and subject to Forest Service approval, shall become part of this permit, as Exhibit "D" to be attached hereto. Said plan shall be approved before any on-the-ground construction takes place and shall be strictly followed by the permittee.

52. The permittee shall designate a construction manager for the project construction. This individual shall be qualified to represent the permittee, and shall be present or have a qualified acting present at all times while project construction activities are taking place. This individual shall be the one to receive the on-the-ground approvals and directions from the designated Forest Service representative(s).

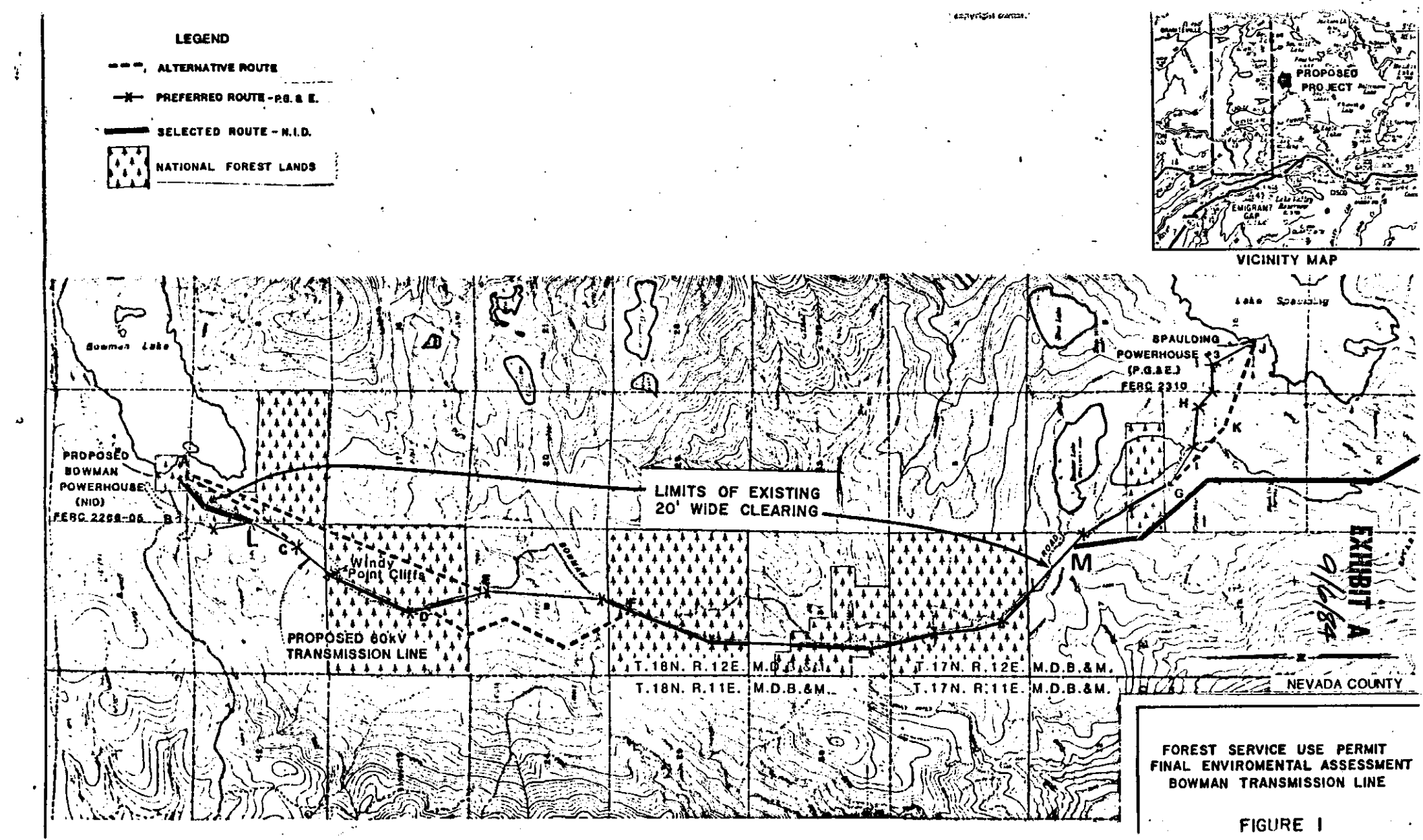
53. When construction is in progress adjacent to or on Forest Service controlled roads open to public travel, permittee shall furnish, install, and maintain temporary traffic controls which provide the public with adequate warning and protection from hazardous or potentially hazardous conditions associated with permittee's operations. Devices shall be appropriate to current conditions and shall be covered or removed when not needed. Except as otherwise agreed, flagmen and devices shall be as specified in the "Manual on Uniform Traffic Control Devices for Streets and Highways" (MUTCD).

54. Construction activities are authorized under this permit only when the permittee holds a valid license from the Federal Energy Regulatory Commission. This permit shall automatically terminate upon surrender or revocation of said license.

55. The permittee shall allow at fair market rental rates the unused capacity of the transmission facilities to be used for wheeling or transport of electrical energy produced by other parties.

56. The designated Forest Service representative for this permit is:

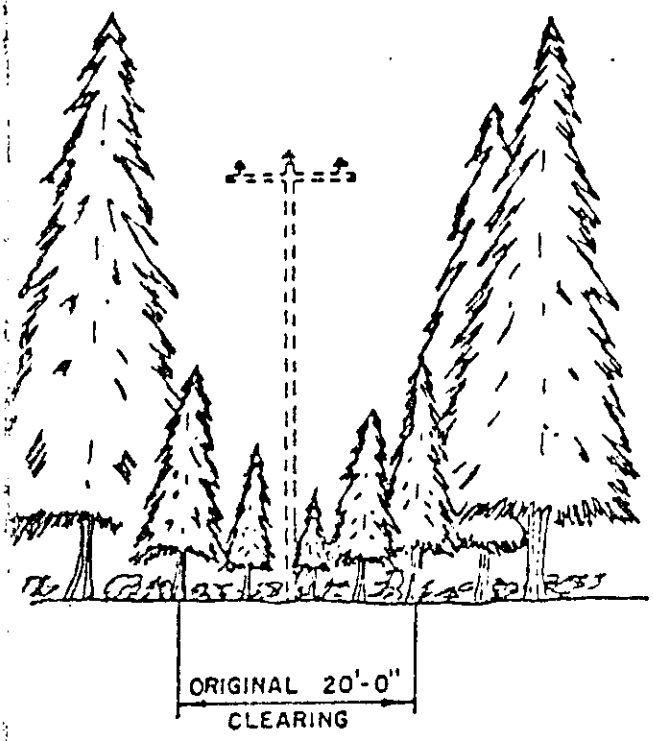
District Ranger
Nevada City Ranger District
12012 Sutton Way
Grass Valley, CA 95945
(916) 273-1371



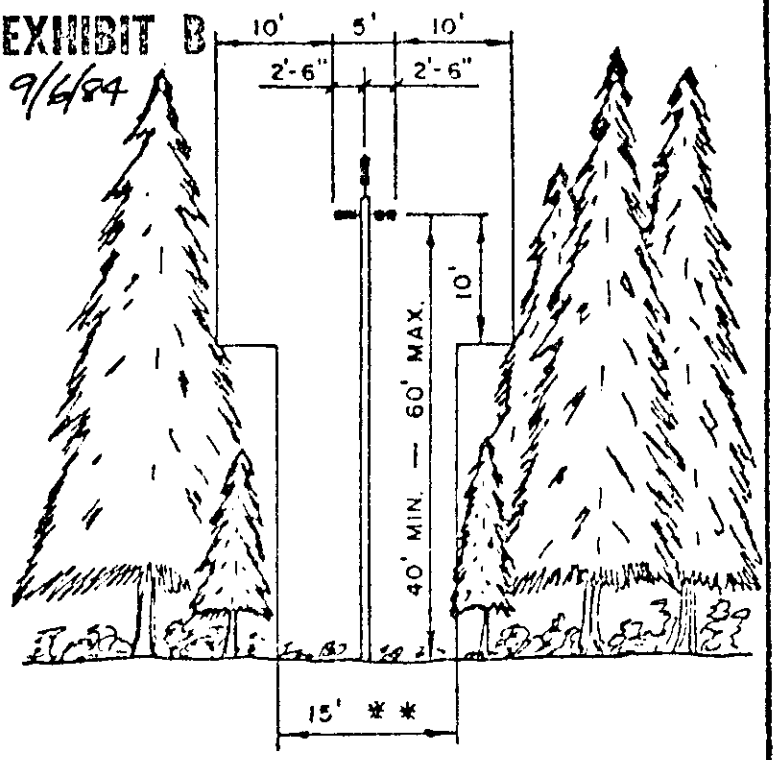
FOREST SERVICE USE PERMIT
FINAL ENVIROMENTAL ASSESSMENT
BOWMAN TRANSMISSION LINE

FIGURE 1

EXHIBIT B
9/6/84

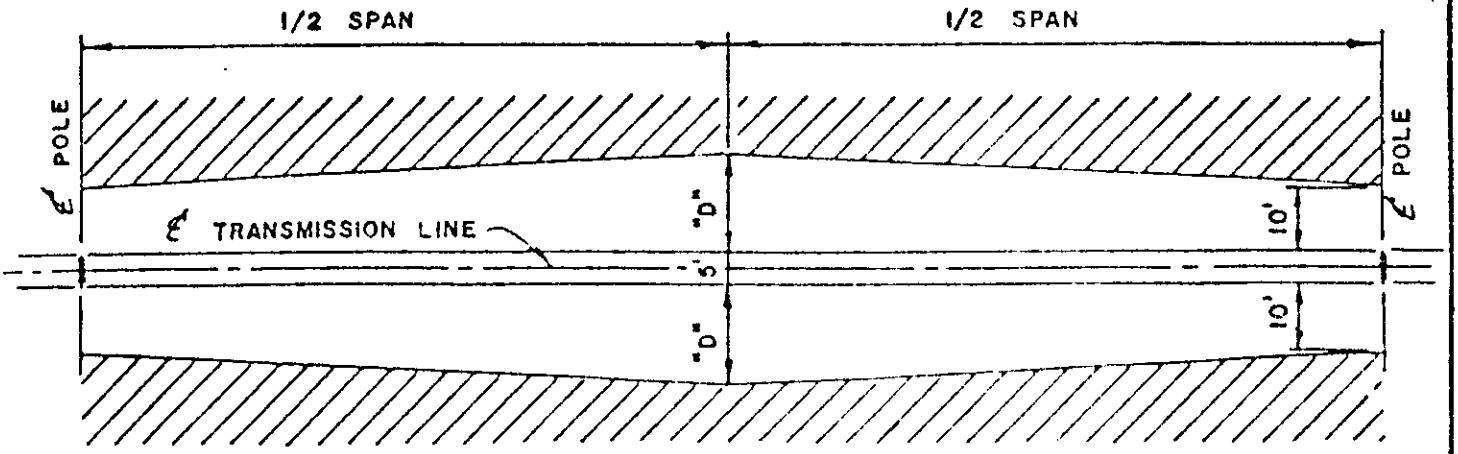


EXISTING CLEARED R/W



* * THIS ZONE WILL BE CLEARED OF SMALL TREES AND BRUSH ONLY IN AN AREA LARGE ENOUGH TO ERECT THE POLE AND MOVE EQUIPMENT.
AN AREA AROUND THE POLES WILL BE KEPT CLEAR TO MINIMIZE FIRE HAZARD TO THE POLE.

CLEARING LIMITS AT POLE



SPAN	"D" *
200'	10'
500'	15'

* "D" TO BE PROPORTIONED BETWEEN 10' & 15' FOR SPAN LENGTHS BETWEEN 200' & 500'

CLEARING LIMITS BETWEEN POLES
PLAN VIEW

FOREST SERVICE USE PERMIT
FINAL ENVIROMENTAL ASSESSMENT
BOWMAN TRANSMISSION LINE

FIGURE 2

2720 - Tahoe
Special Use Permit
Nevada Irrigation District
8/9/84

EXHIBIT X

LANDSCAPE AND EROSION CONTROL PLAN

I Purpose

To specify the various measures to be taken by Nevada Irrigation District as deemed appropriate and necessary to achieve the objective of this plan.

II Objective

To protect, restore, or enhance the landscape and prevent erosion damage during and after the installation of powerlines.

III Requirements of the Plan

A. Landscaping

1. Clearing shall be performed in a manner which will maximize preservation of natural beauty, conservation of natural resources, and minimize marring and scarring of the landscape or silting of streams.

2. Clearing of natural vegetation shall be limited to that material which poses a hazard to the transmission line or required for the construction thereof.

3. The use of "brush blades" instead of dirt blades on bulldozers is recommended in clearing operations where such use will preserve the cover crop of grass, low growing brush, etc.

4. Soil which has been excavated during construction and not used shall be evenly back filled onto the cleared area or removed from the site. The soil should be graded to conform with the terrain and the adjacent land.

5. Replacement of earth adjacent to water crossings for access roads should be at slopes less than the normal angle of repose for the soil type involved. Sodding or seeding should be accomplished without undue delay.

6. Trees, shrubs, grass, natural features and topsoil which are not removed should be protected from damage during construction.

7. All trenches for buried cable installations will be backfilled and compacted and slightly crowned to provide for drainage.

8. Erosion Control

1. All proposed roads, trails, and trenches will be staked on the ground and approved by the Forest Service prior to construction.

2. Erosion problems attributed to the construction or maintenance of existing lines will be resolved as soon as possible and subsequent follow-up action initiated as needed to prevent or correct deterioration of the site.

3. Temporary roads and/or cleared right-of-way routes used for access will be obliterated and put to bed immediately after they have served their intended purpose unless otherwise approved by the Forest Service.

4. Cross drains and other erosion control devices will be constructed where necessary to prevent erosion along rights-of-way or temporary access routes. Cross drains will be constructed for every 20 feet change in elevation at an angle of approximately 20-30 degrees to the centerline and will extend to a minimum depth of 12 inches into mineral soil. Where feasible, cross drains will extend 10-15 feet from the edge of disturbed areas with grades feathered to the contour.

5. Areas of soil disturbance favorable to revegetation on which ground cover has been destroyed will be revegetated to grass or other suitable vegetation when deemed necessary by the Forest Service. This determination will be made on an area or project basis.

6. When required, stabilization of "bare" soil by reseeding will be accomplished in accordance with all or a combination of the following procedures as specified by the Forest Service.

   a. Sequence of Treatment

      On each area to be reseeded, the site will be prepared and scarified, seed and fertilizer applied, seed covered by raking or dragging, spread mulch, and impact mulch.

   b. Fertilizing

      Fertilizer shall have a guaranteed analysis of 16 percent nitrogen, 20 percent available phosphoric acid (16-20-0) and will be spread at a rate of 400 pounds per acre unless otherwise prescribed by the Forest Service.

   c. Seeding

      Seeding will be done at a time of the year, in a manner, and with the species which the Forest Service considers offer the best chance of success. Seeding prescriptions (type of seed to be used and rate of application, etc.) will be prepared on a project basis with respect to and in consideration of site conditions.

d. Mulching

Seeded areas shall be uniformly covered with rice straw, spread at a rate of four tons per acre. The straw will be impacted into the soil with a roller or other suitable equipment.

7. Where site factors make it unusually difficult to establish a protective vegetative cover, other restoration procedures may be required, such as the use of gravel, rocks, concrete, etc.

Yuba-Bear Hydroelectric Project
FERC Project No. 2266-096

Amended Fire Prevention and Response Plan

Attachment D

NID Letter to Forest Service

NEVADA IRRIGATION DISTRICT

1036 W. MAIN STREET, GRASS VALLEY, CA 95945~www.nidwater.com
(530-273-6185~Fax: (530) 477-2646

March 10, 2011

3/6-J

Attn: Joe Chavez, Public Service Officer
US Forest Service – Tahoe National Forest
631 Coyote Street
Nevada City, CA 95959-2250
Fax #478-6109

Re: Fires in Designated Areas Only

To Whom It May Concern:

The Nevada Irrigation District gives the US Forest Service permission to enforce whatever the current camp fire restrictions or campfire bans are on the Nevada Irrigation District upper division properties as restrictions are made on Forest Service lands. This permission had originally been granted on March 9, 2004.

Sincerely,

Peggy Davidson

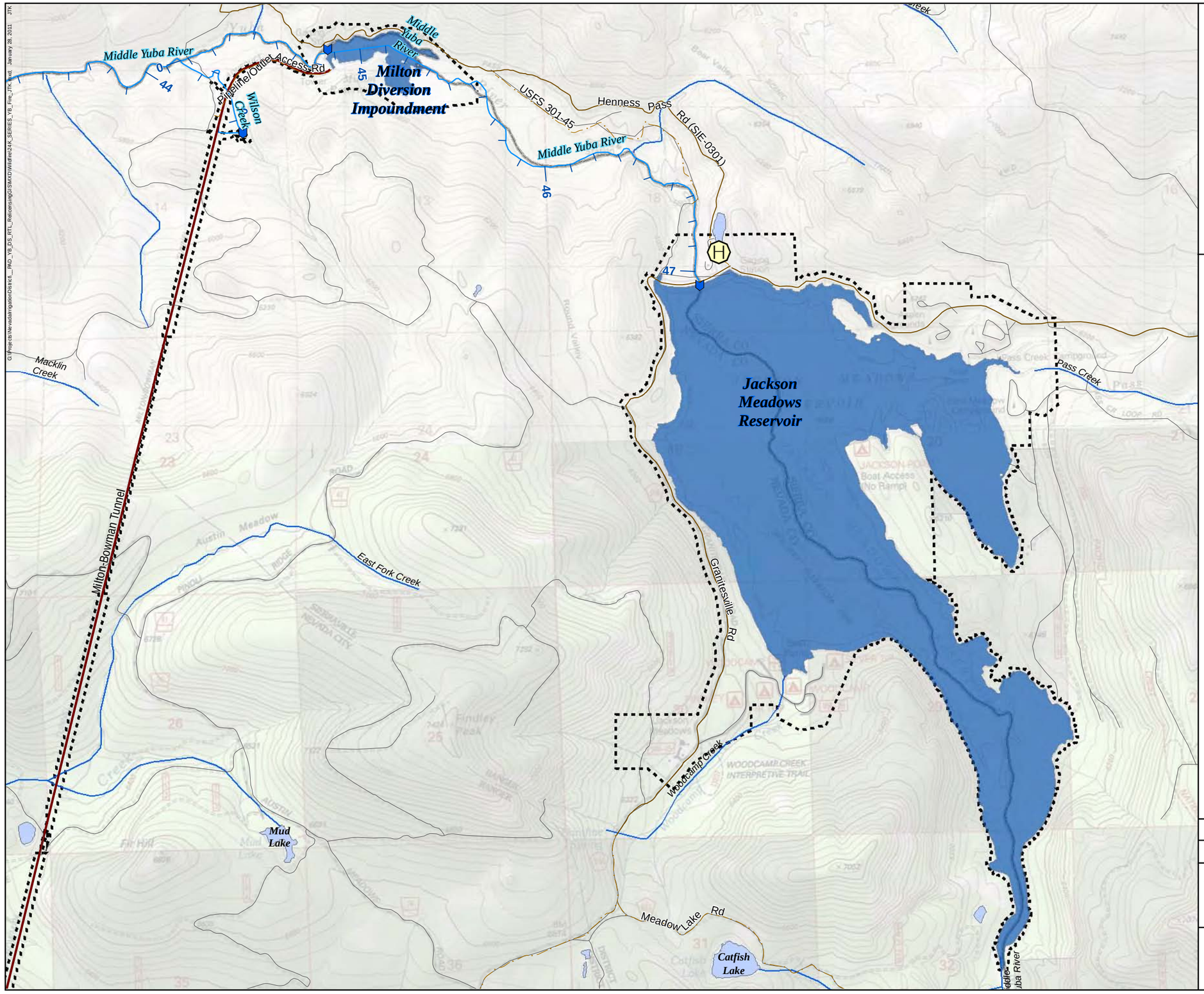
Peggy Davidson
Recreation Manager for
Nevada Irrigation District
(530) 265-8861

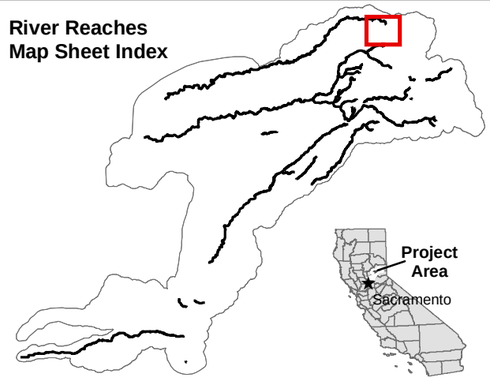
Yuba-Bear Hydroelectric Project
FERC Project No. 2266-096

Amended Fire Prevention and Response Plan

Attachment E

Project Area Figures





- Helipad
- NID Field office
- NID Microwave Station
- NID Dam
- NID Powerhouse
- FERC Boundary 2266
- Transmission Line
- Tunnel, Penstock, Pipe or Spill
- River
- Non-Project Reservoir

Access Roads

- Dirt
- Improved
- Primary Highway
- Secondary Highway

Water Drafting Site

- Project Reservoir
- Canal
- Flume

0 1,000 2,000 3,000 4,000 Feet

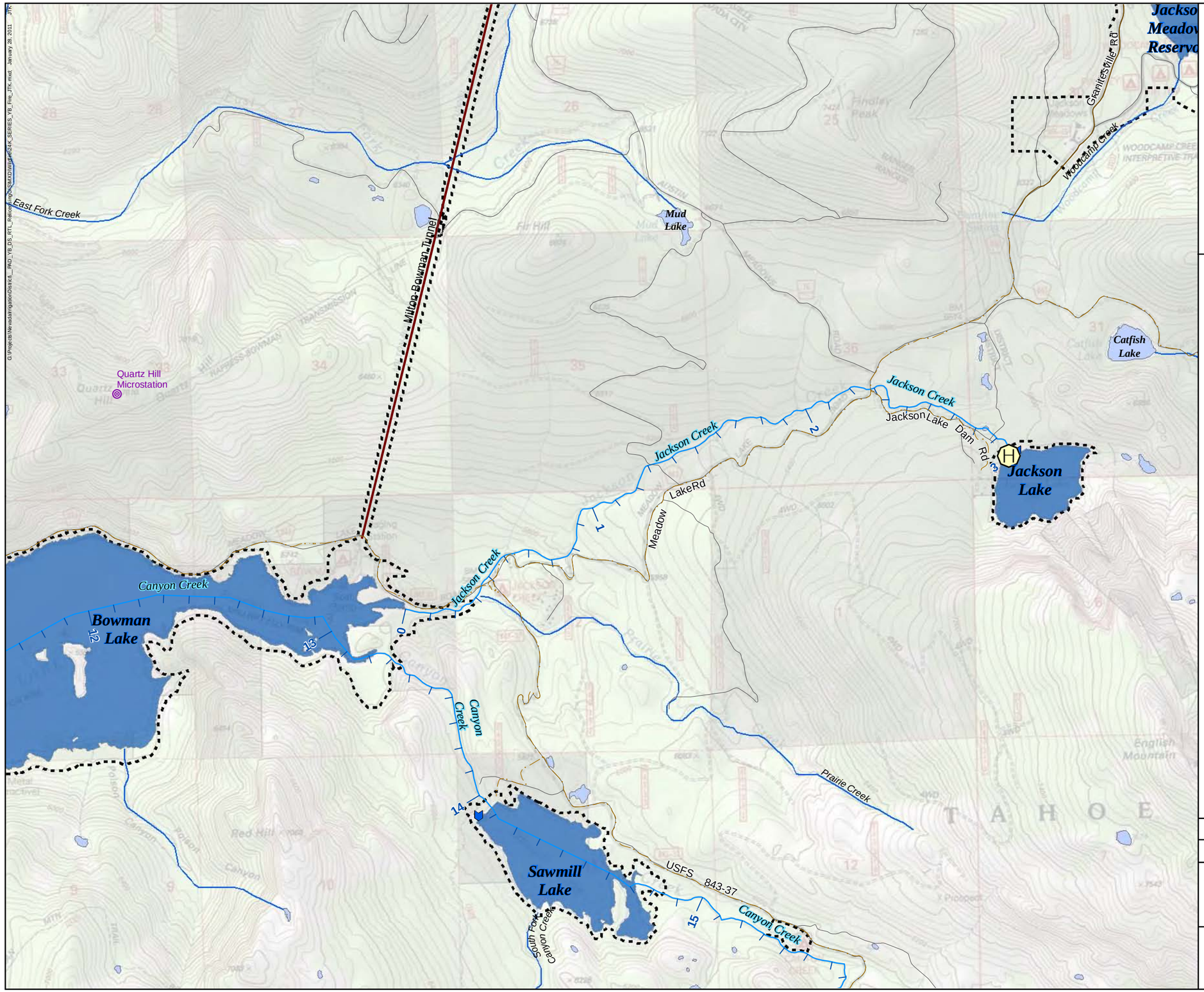
N

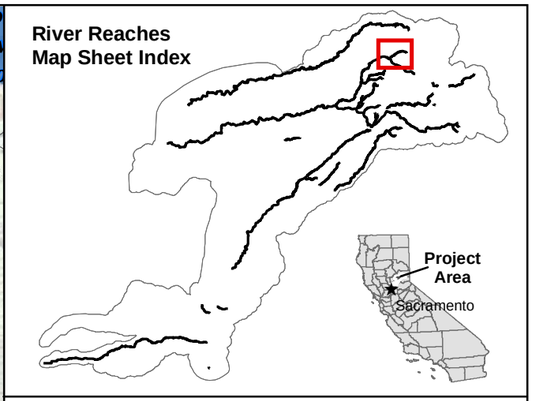
Attachment E, Figure 1

FERC PROJECT NO. 2266

Yuba-Bear Hydroelectric Project Facilities Fire Access and Suppression Sites

Data Sources: Map information was compiled from the best available sources. No Warranty is made for its accuracy or completeness. Base data derived from USGS 7.5-Minute Series Topographic Maps; Roads: Tahoe National Forest (TNF) and Nevada Irrigation District (NID) and PG&E and ESRI; Streams; USGS and TNF; Transmission Lines, Facilities - Nevada Irrigation District, PG&E and USGS Ownership: TNF, Nevada County, Placer County, BLM
Data is UTM meters, NAD83, zone 10





- Helipad
- NID Field office
- NID Microwave Station
- NID Dam
- NID Powerhouse
- FERC Boundary 2266
- Transmission Line
- Tunnel, Penstock, Pipe or Spill
- River
- Non-Project Reservoir

Access Roads

- Dirt
- Improved
- Primary Highway
- Secondary Highway

Water Drafting Site

- Project Reservoir
- Canal
- Flume

0 1,000 2,000 3,000 4,000 Feet

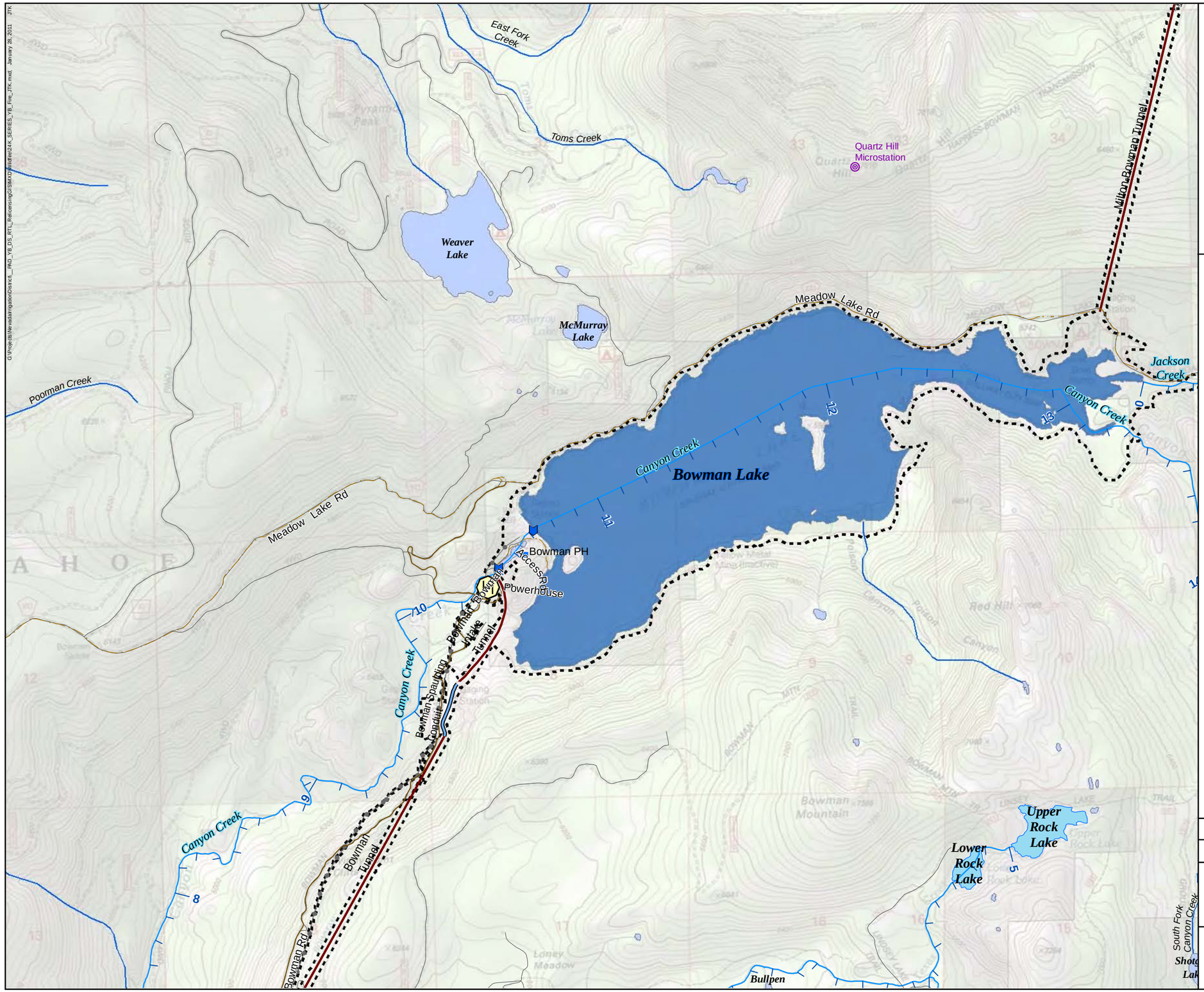
N

Attachment E, Figure 2

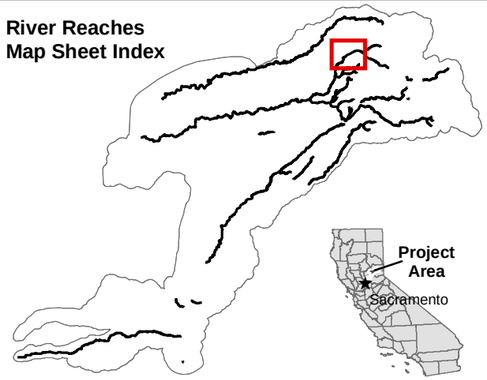
FERC PROJECT NO. 2266

Yuba-Bear Hydroelectric Project Facilities Fire Access and Suppression Sites

Data Sources: Map information was compiled from the best available sources. No Warranty is made for its accuracy or completeness. Base data derived from USGS 7.5-Minute Series Topographic Maps; Roads: Tahoe National Forest (TNF) and Nevada Irrigation District (NID) and PG&E and ESRI; Streams; USGS and TNF; Transmission Lines, Facilities - Nevada Irrigation District, PG&E and USGS Ownership: TNF, Nevada County, Placer County, BLM
Data is UTM meters, NAD83, zone 10



River Reaches Map Sheet Index



- Helipad
- NID Field office
- NID Microwave Station
- NID Dam
- NID Powerhouse
- FERC Boundary 2266
- Transmission Line
- Tunnel, Penstock, Pipe or Spill
- River
- Non-Project Reservoir

Access Roads

- Dirt
- Improved
- Primary Highway
- Secondary Highway

Water Drafting Site

- Project Reservoir
- Canal
- Flume

0 1,000 2,000 3,000 4,000 Feet

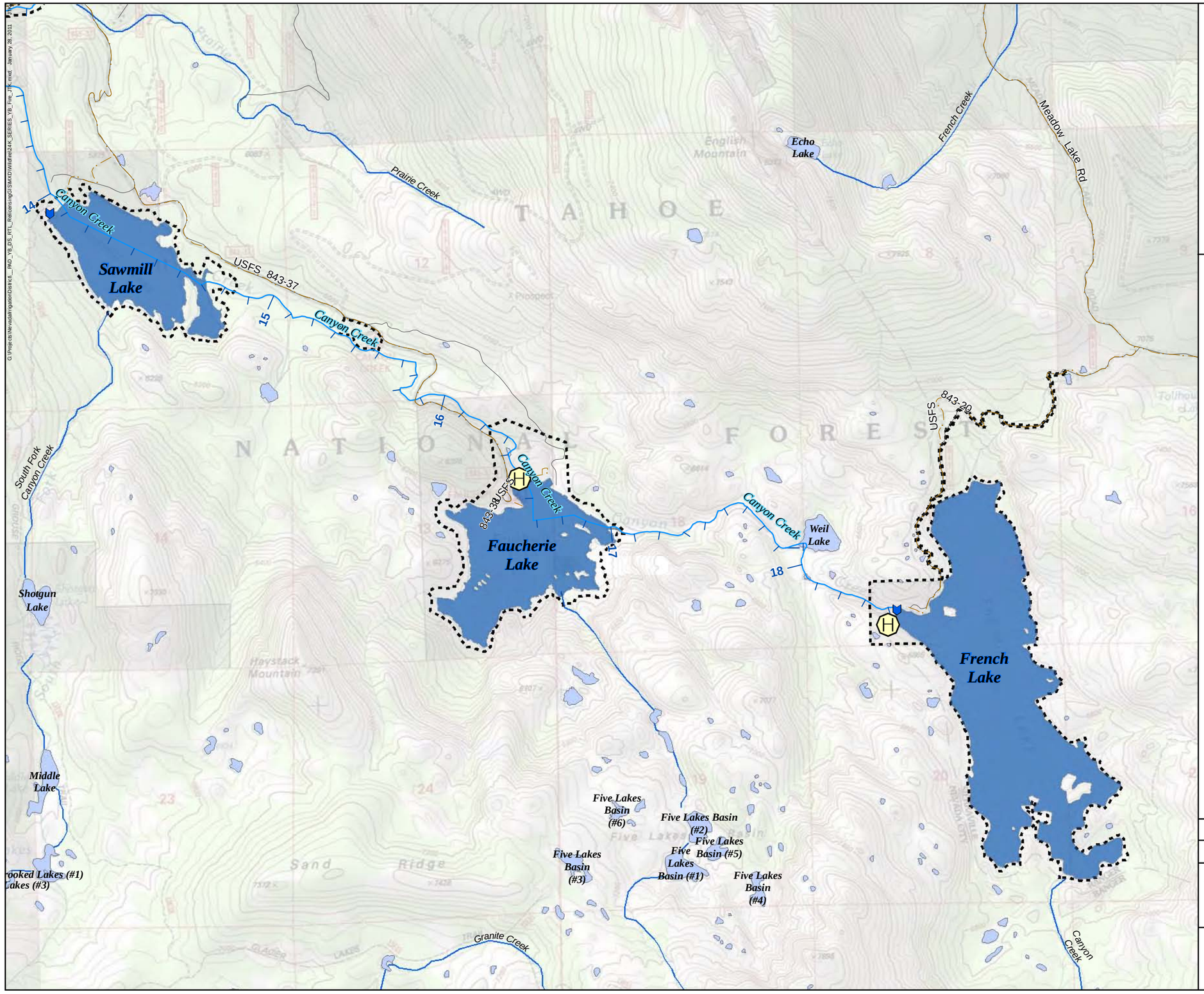
N

Attachment E, Figure 3

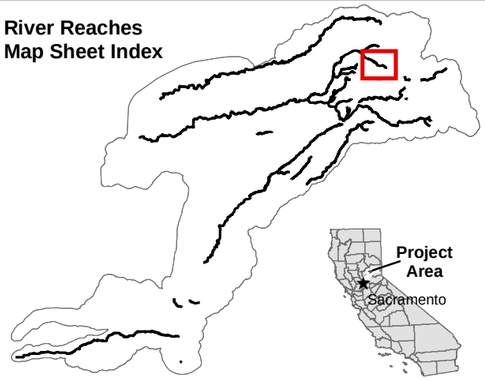
FERC PROJECT NO. 2266

Yuba-Bear Hydroelectric Project Facilities Fire Access and Suppression Sites

Data Sources: Map information was compiled from the best available sources. No Warranty is made for its accuracy or completeness. Base data derived from USGS 7.5-Minute Series Topographic Maps; Roads: Tahoe National Forest (TNF) and Nevada Irrigation District (NID) and PG&E and ESRI; Streams; USGS and TNF; Transmission Lines, Facilities - Nevada Irrigation District, PG&E and USGS Ownership: TNF, Nevada County, Placer County, BLM
Data is UTM meters, NAD83, zone 10



River Reaches Map Sheet Index



- Helipad
- NID Field office
- NID Microwave Station
- NID Dam
- NID Powerhouse
- FERC Boundary 2266
- Transmission Line
- Tunnel, Penstock, Pipe or Spill
- River
- Non-Project Reservoir

Access Roads

- Dirt
- Improved
- Primary Highway
- Secondary Highway

Water Drafting Site

- Project Reservoir
- Canal
- Flume

0 1,000 2,000 3,000 4,000 Feet

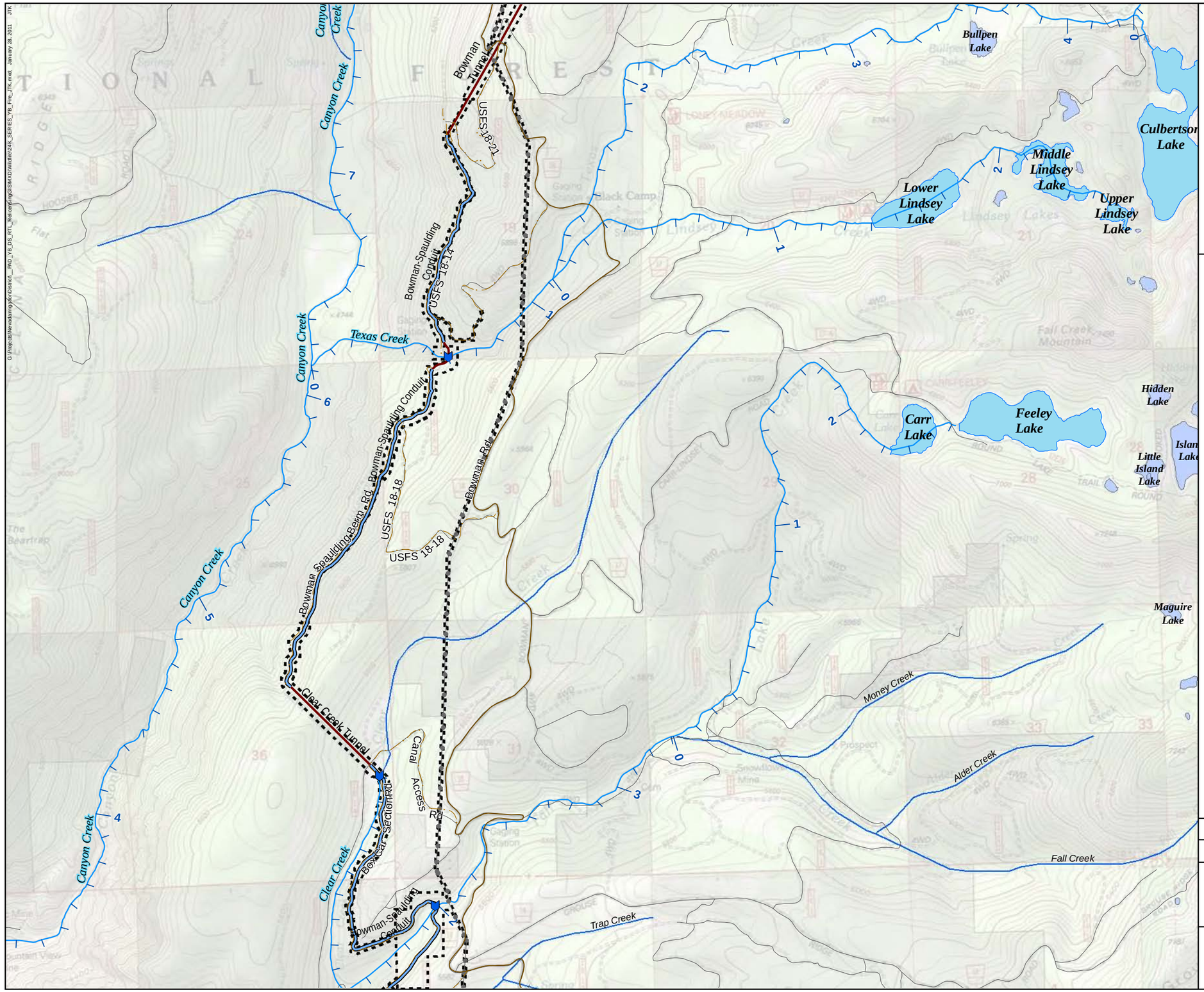
N

Attachment E, Figure 4

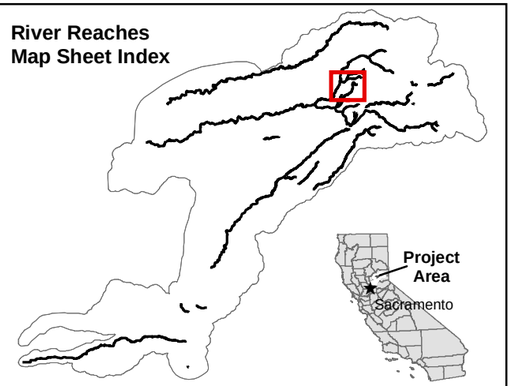
FERC PROJECT NO. 2266

Yuba-Bear Hydroelectric Project Facilities Fire Access and Suppression Sites

Data Sources: Map information was compiled from the best available sources. No Warranty is made for its accuracy or completeness. Base data derived from USGS 7.5-Minute Series Topographic Maps; Roads: Tahoe National Forest (TNF) and Nevada Irrigation District (NID) and PG&E and ESRI; Streams; USGS and TNF; Transmission Lines, Facilities - Nevada Irrigation District, PG&E and USGS Ownership: TNF, Nevada County, Placer County, BLM
Data is UTM meters, NAD83, zone 10



River Reaches Map Sheet Index



- Helipad
- NID Field office
- NID Microwave Station
- NID Dam
- NID Powerhouse
- FERC Boundary 2266
- Transmission Line
- Tunnel, Penstock, Pipe or Spill
- River
- Non-Project Reservoir

Access Roads

- Dirt
- Improved
- Primary Highway
- Secondary Highway

Water Drafting Site

- Project Reservoir
- Canal
- Flume

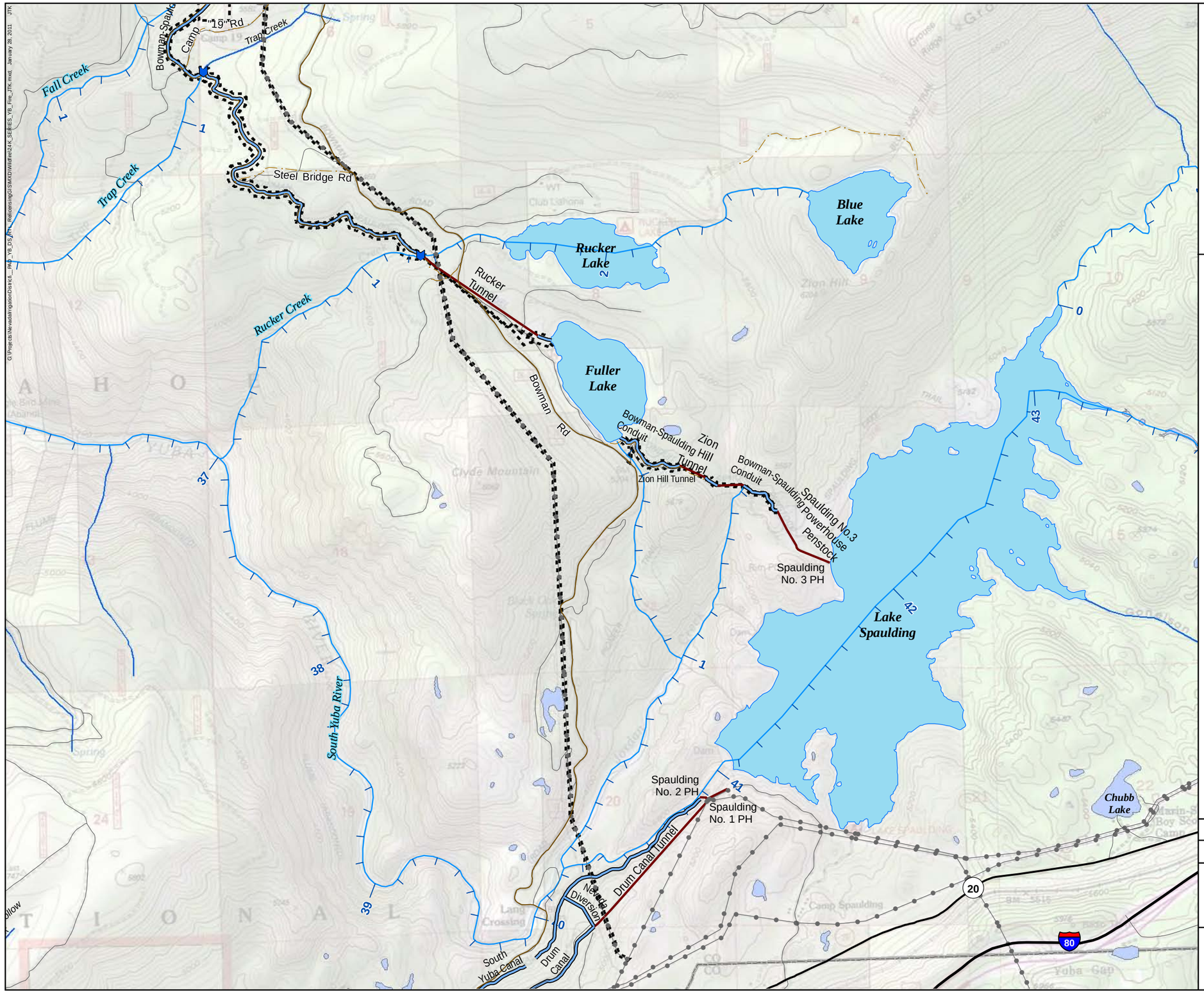
0 1,000 2,000 3,000 4,000 Feet

Attachment E, Figure 5

FERC PROJECT NO. 2266

Yuba-Bear Hydroelectric Project Facilities Fire Access and Suppression Sites

Data Sources: Map information was compiled from the best available sources. No Warranty is made for its accuracy or completeness. Base data derived from USGS 7.5-Minute Series Topographic Maps; Roads: Tahoe National Forest (TNF) and Nevada Irrigation District (NID) and PG&E and ESRI; Streams; USGS and TNF; Transmission Lines, Facilities - Nevada Irrigation District, PG&E and USGS Ownership: TNF, Nevada County, Placer County, BLM
Data is UTM meters, NAD83, zone 10

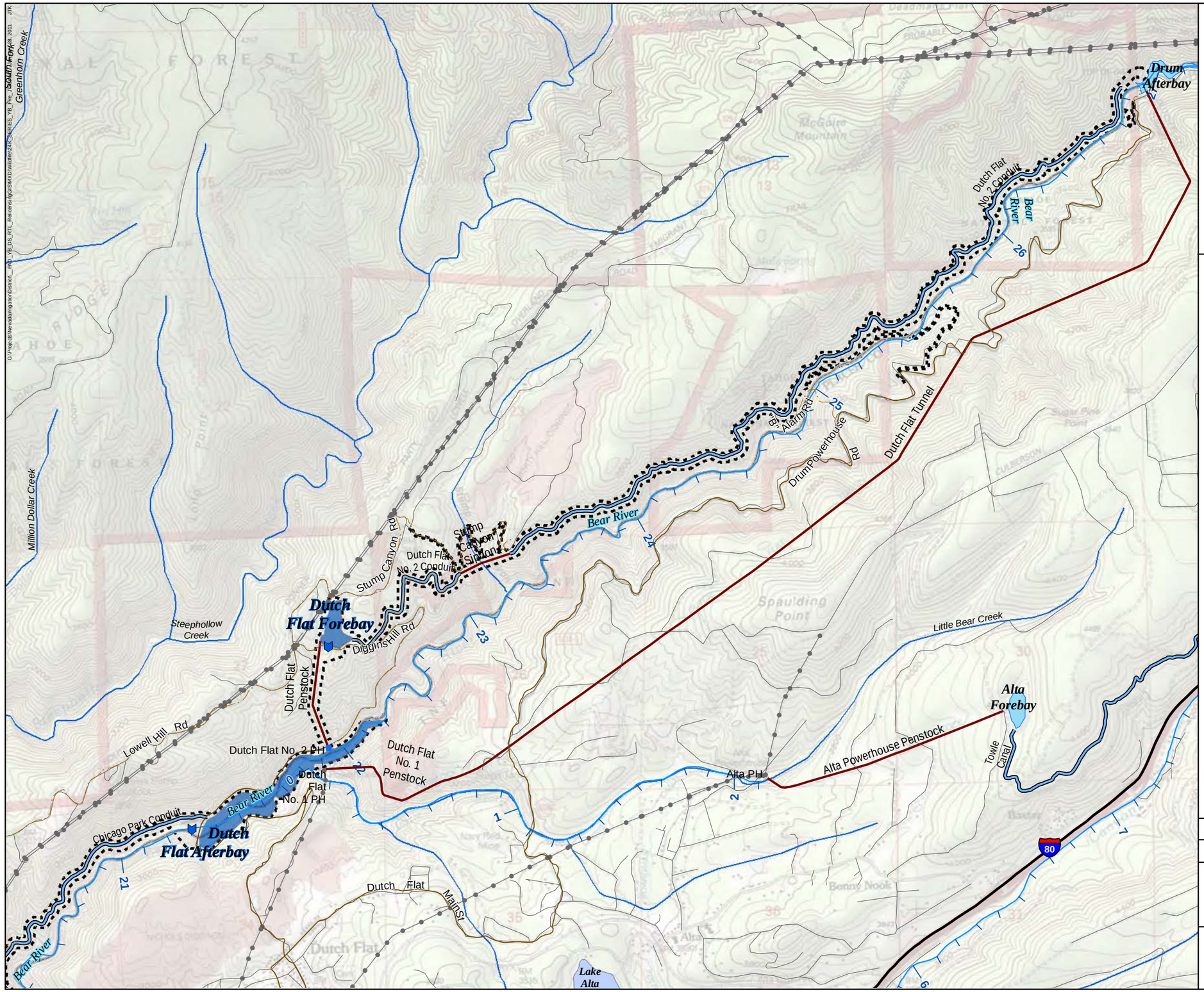


Attachment E, Figure 6

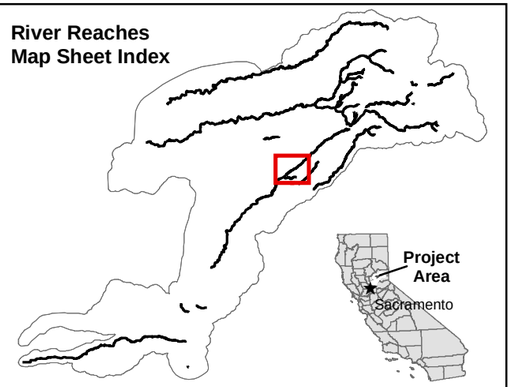
FERC PROJECT NO. 2266

Yuba-Bear Hydroelectric Project Facilities Fire Access and Suppression Sites

Data Sources: Map information was compiled from the best available sources. No Warranty is made for its accuracy or completeness. Base data derived from USGS 7.5-Minute Series Topographic Maps; Roads: Tahoe National Forest (TNF) and Nevada Irrigation District (NID) and PG&E and ESRI; Streams; USGS and TNF; Transmission Lines, Facilities - Nevada Irrigation District, PG&E and USGS Ownership: TNF, Nevada County, Placer County, BLM
Data is UTM meters, NAD83, zone 10



River Reaches Map Sheet Index



- Helipad
- NID Field office
- NID Microwave Station
- NID Dam
- NID Powerhouse
- FERC Boundary 2266
- Transmission Line
- Tunnel, Penstock, Pipe or Spill
- River
- Non-Project Reservoir

Access Roads

- Dirt
- Improved
- Primary Highway
- Secondary Highway

Water Drafting Site

- Project Reservoir
- Canal
- Flume

0 1,000 2,000 3,000 4,000 Feet

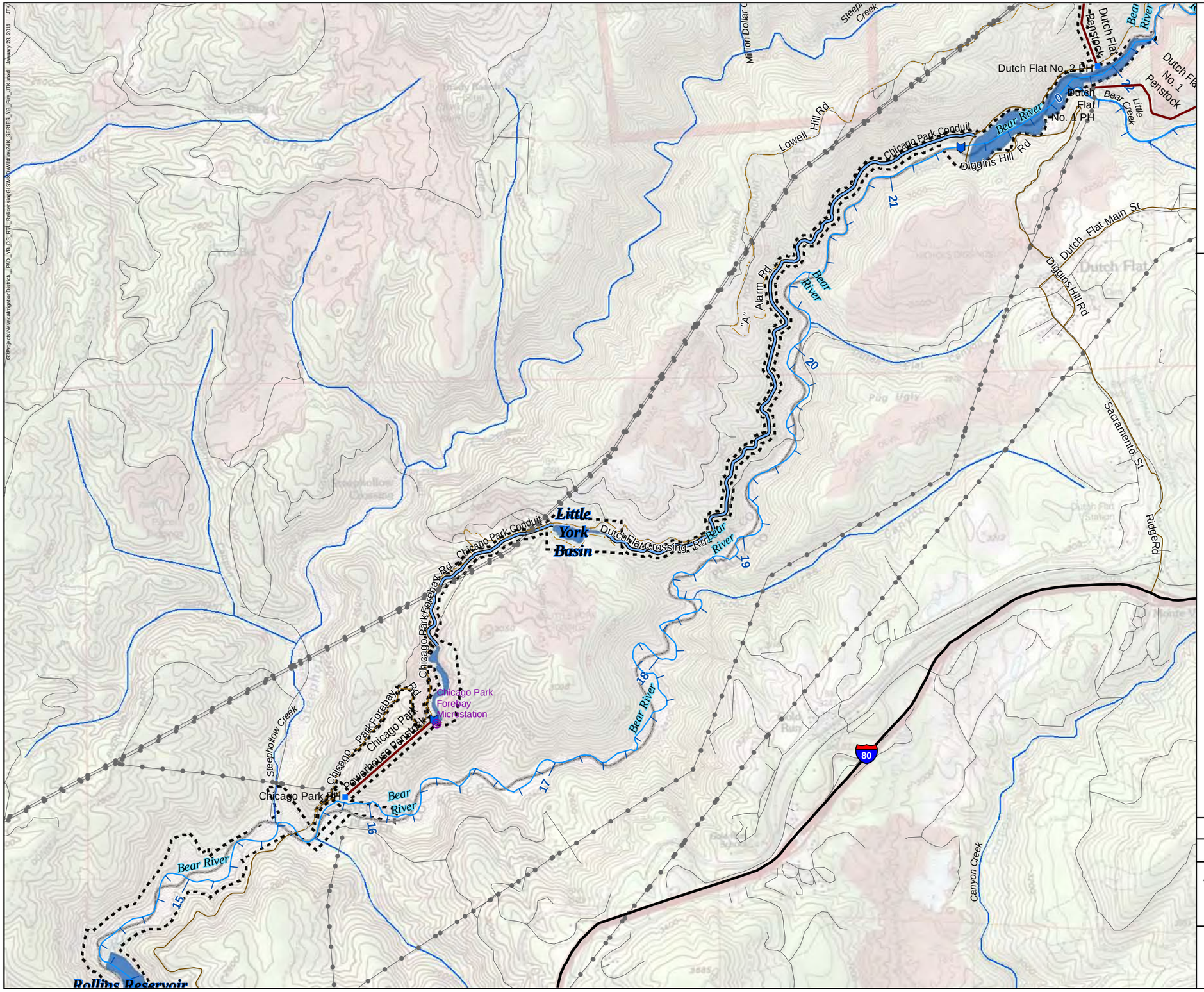
N

Attachment E, Figure 7

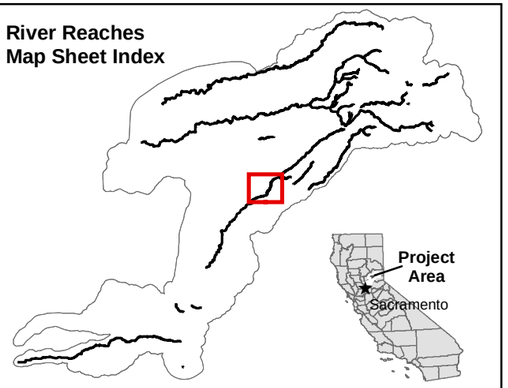
FERC PROJECT NO. 2266

Yuba-Bear Hydroelectric Project Facilities Fire Access and Suppression Sites

Data Sources: Map information was compiled from the best available sources. No Warranty is made for its accuracy or completeness. Base data derived from USGS 7.5-Minute Series Topographic Maps; Roads: Tahoe National Forest (TNF) and Nevada Irrigation District (NID) and PG&E and ESRI; Streams; USGS and TNF; Transmission Lines, Facilities - Nevada Irrigation District, PG&E and USGS Ownership: TNF, Nevada County, Placer County, BLM
Data is UTM meters, NAD83, zone 10



River Reaches Map Sheet Index



- Helipad
- NID Field office
- NID Microwave Station
- NID Dam
- NID Powerhouse
- FERC Boundary 2266
- Transmission Line
- Tunnel, Penstock, Pipe or Spill
- River
- Non-Project Reservoir

Access Roads

- Dirt
- Improved
- Primary Highway
- Secondary Highway

Water Drafting Site

- Project Reservoir
- Canal
- Flume

0 1,000 2,000 3,000 4,000 Feet

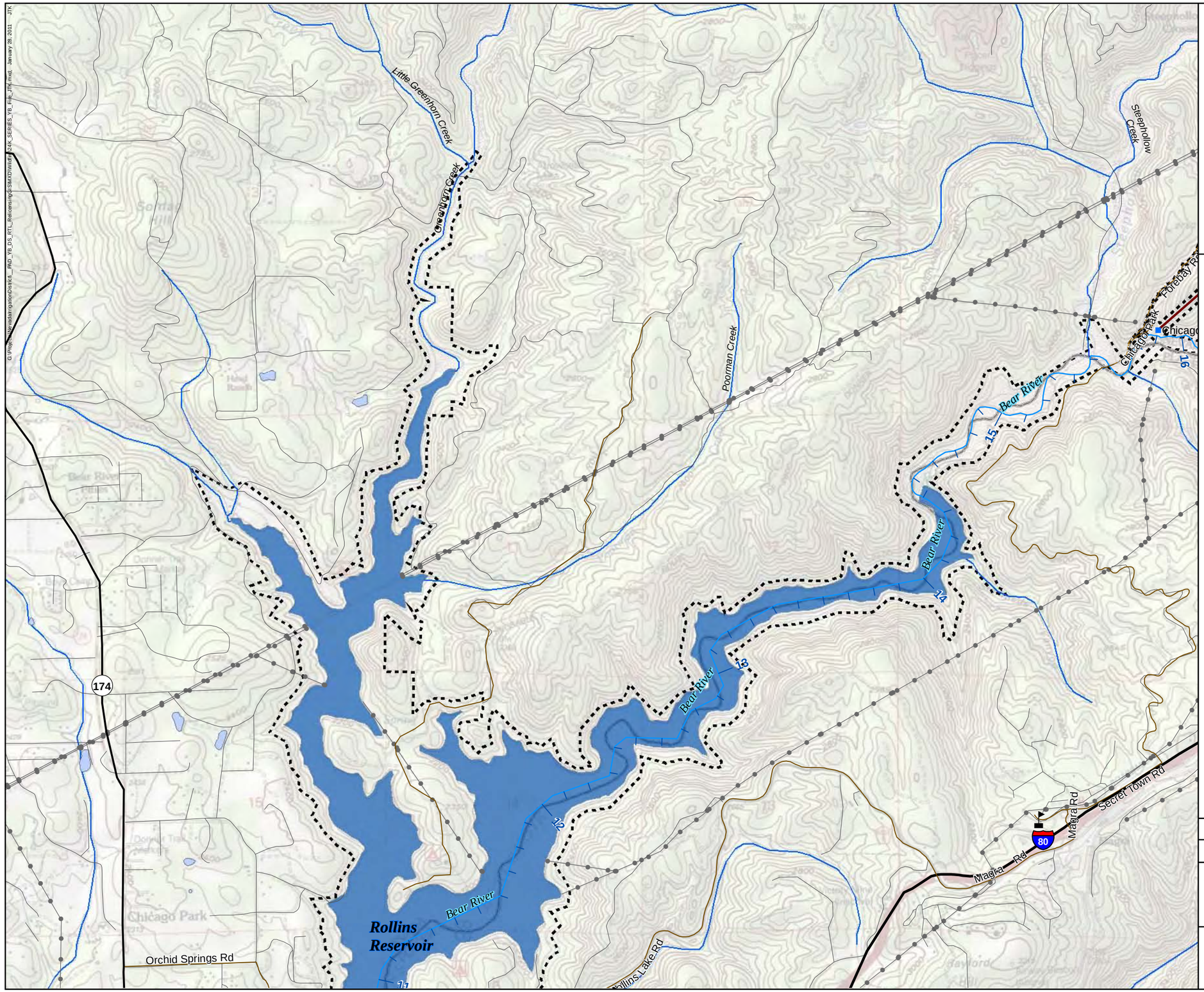
N

Attachment E, Figure 8

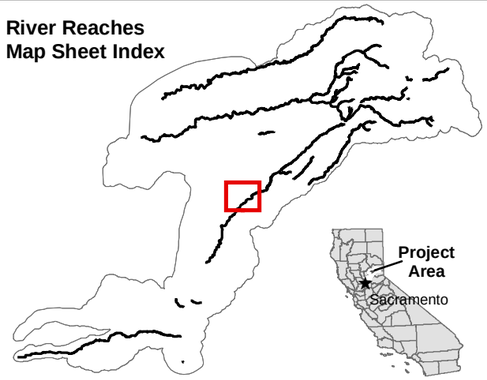
FERC PROJECT NO. 2266

Yuba-Bear Hydroelectric Project Facilities Fire Access and Suppression Sites

Data Sources: Map information was compiled from the best available sources. No Warranty is made for its accuracy or completeness. Base data derived from USGS 7.5-Minute Series Topographic Maps; Roads: Tahoe National Forest (TNF) and Nevada Irrigation District (NID) and PG&E and ESRI; Streams; USGS and TNF; Transmission Lines, Facilities - Nevada Irrigation District, PG&E and USGS Ownership: TNF, Nevada County, Placer County, BLM
Data is UTM meters, NAD83, zone 10



River Reaches Map Sheet Index



- Helipad
- NID Field office
- NID Microwave Station
- NID Dam
- NID Powerhouse
- FERC Boundary 2266
- Transmission Line
- Tunnel, Penstock, Pipe or Spill
- River
- Non-Project Reservoir

Access Roads

- Dirt
- Improved
- Primary Highway
- Secondary Highway

Water Drafting Site

- Project Reservoir
- Canal
- Flume

0 1,000 2,000 3,000 4,000 Feet

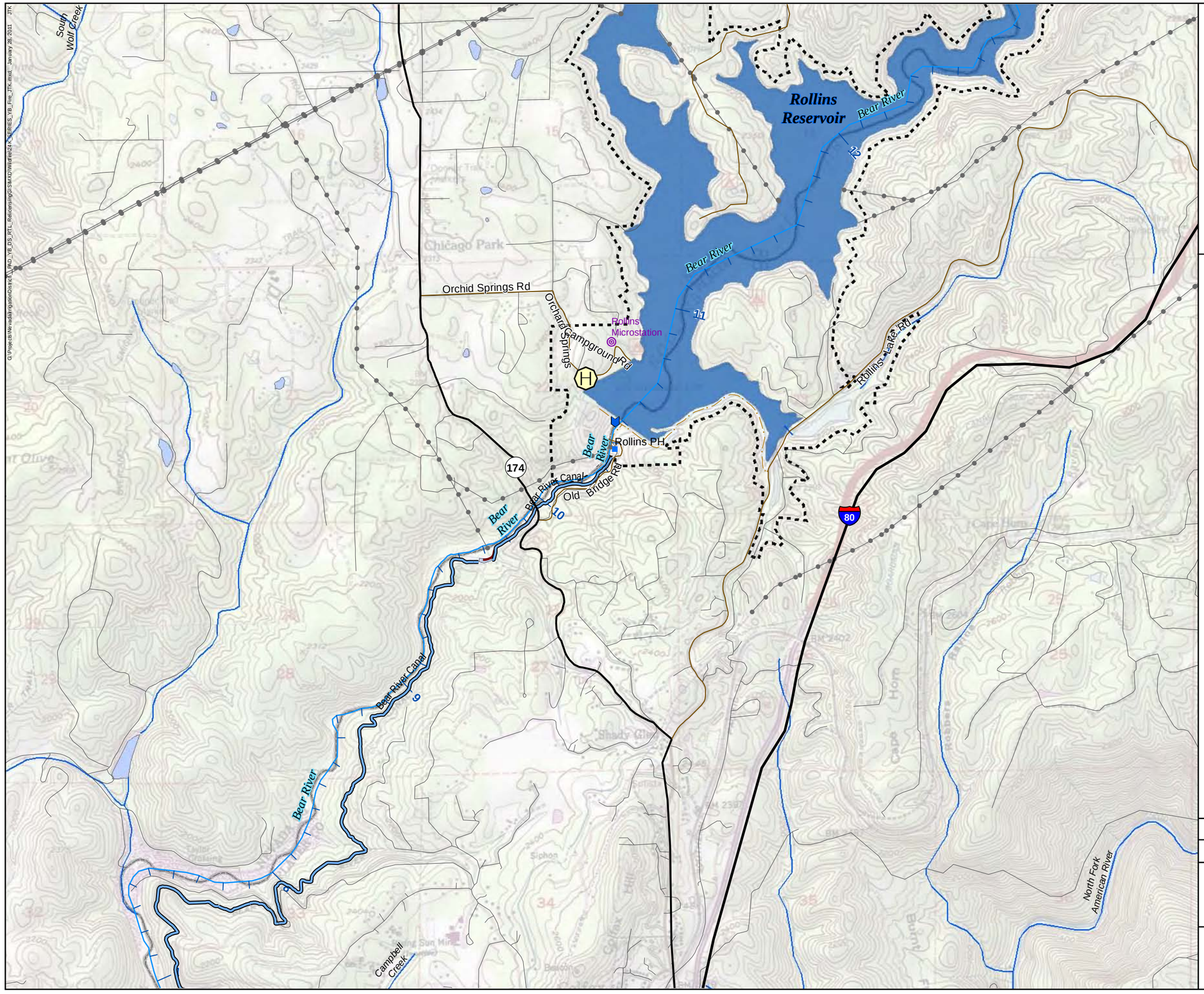
N

Attachment E, Figure 9

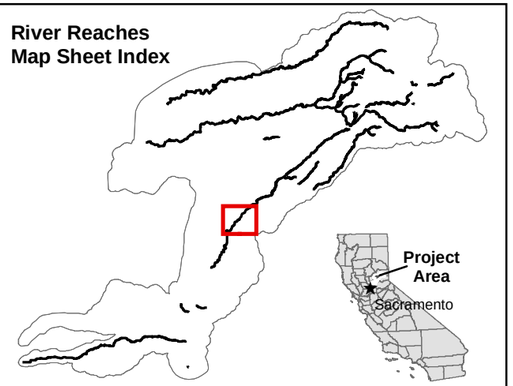
FERC PROJECT NO. 2266

Yuba-Bear Hydroelectric Project Facilities Fire Access and Suppression Sites

Data Sources: Map information was compiled from the best available sources. No Warranty is made for its accuracy or completeness. Base data derived from USGS 7.5-Minute Series Topographic Maps; Roads: Tahoe National Forest (TNF) and Nevada Irrigation District (NID) and PG&E and ESRI; Streams; USGS and TNF; Transmission Lines, Facilities - Nevada Irrigation District, PG&E and USGS Ownership: TNF, Nevada County, Placer County, BLM
Data is UTM meters, NAD83, zone 10



River Reaches Map Sheet Index



- Helipad
- NID Field office
- NID Microwave Station
- NID Dam
- NID Powerhouse
- FERC Boundary 2266
- Transmission Line
- Tunnel, Penstock, Pipe or Spill
- River
- Non-Project Reservoir

Access Roads

- Dirt
- Improved
- Primary Highway
- Secondary Highway

Water Drafting Site

- Project Reservoir
- Canal
- Flume

0 1,000 2,000 3,000 4,000 Feet

N

Attachment E, Figure10

FERC PROJECT NO. 2266

Yuba-Bear Hydroelectric Project Facilities Fire Access and Suppression Sites

Data Sources: Map information was compiled from the best available sources. No Warranty is made for its accuracy or completeness. Base data derived from USGS 7.5-Minute Series Topographic Maps; Roads: Tahoe National Forest (TNF) and Nevada Irrigation District (NID) and PG&E and ESRI; Streams; USGS and TNF; Transmission Lines, Facilities - Nevada Irrigation District, PG&E and USGS Ownership: TNF, Nevada County, Placer County, BLM
Data is UTM meters, NAD83, zone 10

Application for a New License
Major Project – Existing Dam

Amended Transportation Management Plan

Yuba-Bear Hydroelectric Project
FERC Project No. 2266-096

Prepared by:
Nevada Irrigation District
1036 West Main Street
Grass Valley, CA 95945
www.nidwater.com

June 2012

Table of Contents

List of Tables

List of Figures

Figure No.	Description	Page No.

None.

List of Attachments

GLOSSARY - DEFINITIONS OF TERMS, ACRONYMS AND ABBREVIATIONS

For the purpose of this Plan, the following definitions apply:

ac	acre
BLM	United States Department of the Interior, Bureau of Land Management
BMP	Best Management Practices
CFR	Code of Federal Regulations
FERC	Federal Energy Regulatory Commission
Forest Service	United States Department of Agriculture, Forest Service
ft	feet
kV	kilovolt
HPMP	Historic Properties Management Plan
mi	mile
MUTCD	Manual of Uniform Traffic Control Devices
NFS	National Forest System
NID or Licensee	Nevada Irrigation District
O&M	operation and maintenance
Plan	Transportation Management Plan
Project	Yuba-Bear Hydroelectric Project, FERC Project No. 2266
ROW	right-of-way
sq mi	square mile
TNF	Tahoe National Forest

Page Left Blank

SECTION 1

INTRODUCTION

1.1 Background

In April 2011, Nevada Irrigation District (NID or Licensee), pursuant to Sections (§§) 5.17 and 5.18 of Title 18 of the Code of Federal Regulations (CFR), plans to file an application for a new license with the Federal Energy Regulatory Commission (FERC) for NID's Yuba-Bear Hydroelectric Project (Project), FERC Project No. 2266. The initial license for the Project was issued by the Federal Power Commission, FERC's predecessor, to NID on June 24, 1963, effective on May 1, 1963, for a term ending April 30, 2013.

NID's existing Project is a water supply/power project located in the Middle Yuba River, Canyon Creek, Fall Creek, Rucker Creek, and Bear River basins in Nevada, Placer, and Sierra counties, California. The Project consists of four developments – Bowman, Dutch Flat, Chicago Park and Rollins – that collectively include nine on-stream reservoirs; three off-stream impoundments; two diversion dams; four powerhouses; one overhead, 60 kilovolt (kV) transmission line; and various water conduits and appurtenant facilities and structures.

Some of the area within the FERC Project Boundary (as shown in Exhibit G of Licensee's application for a new license) occupies federally owned National Forest System (NFS) land managed by the United States Department of Agriculture, Forest Service (Forest Service) as part of the Tahoe National Forest (TNF), and some is federally owned land administered by the United States Department of the Interior, Bureau of Land Management (BLM) in conformance with the Sierra Resource Management Plan (BLM 2008). The majority of the lands on the Project, however, are privately-owned.

1.2 Purpose of the Transportation Management Plan

The Transportation Management Plan (Plan) is intended to provide guidance for the rehabilitation and maintenance of Primary Project Roads for NID's Yuba-Bear Hydroelectric Project, FERC Project No. 2266.

Any measures undertaken with respect to road management will be coordinated by the Licensee with other resource efforts. Measures will conform to the management goals and objectives stated in the following resource management plans that are related to this application for a new license.

- Fire Prevention and Response Plan
- Vegetation Management Plan
- Invasive Species Management Plan
- Recreation Facilities Plan
- Visual Resources Management Plan

Additionally, measures will, in particular, take into account the need to prevent disturbance to any known cultural resources, and to take appropriate actions in the event of unanticipated discovery of cultural materials according to the management goals stated in the Historic Properties Management Plan (HPMP).

1.3 Goals and Objectives of the Transportation Management Plan

The primary goals and objectives of the Plan are to describe the scope of road improvements needed for road design, construction, and maintenance including road planning, road rehabilitation, and road operation and maintenance (O&M). The objective of the Plan is to provide the guidance necessary to meet Plan goals.

1.4 Contents of the Transportation Management Plan

The Plan includes the following:

- Section 1. Introduction. This section includes introductory information, including the purpose and goal of the Plan.
- Section 2. Road Management. This section includes information on roads included in this plan, rehabilitation of roads in poor condition, protection of sensitive resources and general road maintenance activities.
- Section 3. References. This section includes the resource documents used to help develop this Plan.

SECTION 2

PRIMARY PROJECT ROADS MANAGEMENT

2.1 Background

The Plan recognizes that Licensee's activities are one of several contributing factors to current and potential road and trail maintenance conditions and needs on Primary Project Roads within the FERC Project Boundary. Other significant factors likely include public travel, adjacent land management activities, recreation, and severe weather conditions. Licensee believes that an effective Plan will have the greatest potential for success if these non-Project contributing factors are minimized.

This Plan summarizes NID's intentions to maintain and rehabilitate Primary Project Roads associated with the Project (Table 2.1-1). NID has elected to submit this Plan to facilitate the mitigation of project effects associated with O&M of the Project. This plan describes the measures needed to rehabilitate and maintain Primary Project Roads.

Table 2.1-1. Primary Project Roads.

Road Name	Road ID	Length (mi)	FS Maintenance Level	Surface Type	Road Condition
"B" Alarm Rd.	YBBAL_001	1.5	N/A	Native	Poor
Bowman Dam Access Rd.	YBBND_001	0.3	N/A	Gravel & Native	Poor
Bunkhouse Rd.	YBBNK_001	0.1	N/A	Gravel	Good
Bowman PH Access Rd.	YBBPH_001	0.4	2 - N/A	Gravel	Good
Bowman-Spaulding Berm Rd.	YBBSC_001	0.9	N/A	Asphalt, Gravel, & Native	Poor
Texas Creek Diversion Access Rd.	YBBSC_003	0.4	N/A	Gravel	Good
Box Car Section Rd.	YBBSC_004	1.3	N/A	Gravel	Poor
Bowman Spaulding Berm Rd.	YBBSC_006	3.5	N/A	Gravel	Good
Chicago Park Forebay Rd.	YBCPF_001	1.7	N/A	Gravel & Native	Poor
Chicago Park Forebay Rd.	YBCPF_003	0.2	N/A	Native	Good
Chicago Park Powerhouse Access Rd.	YBCPH_001	0.2	N/A	Asphalt	Good
Dutch Flat No. 2 Conduit Intake Access Rd.	YBDFI_001	0.4	N/A	Native	Poor
French Lake Rd.	YBFL_001	2.1	2 - N/A	Native	Poor
Low Level Outlet Access Rd.	YBJMO_001	0.2	N/A	Gravel	Good
Pipeline Outlet Access Rd.	YBMBP_001	1.0	N/A	Native	Poor
Rollins Dam Spillway Access Rd.	YBRDS_001	0.9	N/A	Native	Poor
Connroy Place	YBRMS_001	0.1	N/A	Gravel	Good
Rollins PH Access Rd.	YBRPA_001	0.1	N/A	Asphalt	Good
Stump Canyon Intake Access Rd.	YBSCS_001	0.9	N/A	Native	Poor
Stump Canyon Siphon Low Level Valve Access Rd.	YBSCS_002	0.2	N/A	Native	Poor
Stump Canyon Siphon Outlet Access Rd	YBSCS_003	0.7	N/A	Gravel	Good
Wilson Creek Diversion Rd	YBWCD_001	0.2	N/A	Native	Poor
Canal Access Rd	YBZION_001	0.3	N/A	Gravel	Good

Between 2008 and 2010, NID conducted inventories of Primary Project Roads potentially affected by the Project, whose continued use could result in adverse effects on the environment,

to provide information for the development of this Plan. The study was additionally designed to determine whether the Primary Project Roads met the Forest Service maintenance-level objectives and identify what, if any, environmental damage may result from the interaction between road features, rainfall runoff, erosion, and sediment delivery. The field inventory identified attributes along each segment of road, including road dimensions and locations of water crossings and road drainage features, gates and signs, hazard trees, and erosion features.

Analysis of the roads inventory data identified three road classifications or "bins" used to track the status and long-term use of each road segment. The three bins include the following:

1. Primary Project Roads that were included in the Roads and Trails Technical Memorandum (2010), and continue to be proposed as Primary.
2. Primary Project Roads that were not included in the Roads and Trails Technical Memorandum (2010), were inventoried later, and are now proposed as Primary.
3. Roads which were included the Roads and Trails Technical Memorandum (2010) as Primary, are not needed long-term, and are now proposed to be decommissioned and closed for future use.

2.1.1 Roads Proposed for Decommissioning

YBCPF_002 was removed from the Primary Project Road list. This road is presently closed by an active landslide. Licensee recommends decommissioning this road and removing it as a Primary Project Road.

2.2 Road System Planning

Primary Project Roads and associated facilities were evaluated to determine the current and potential Primary Project Road annual maintenance treatment types and associated costs. For roads in poor condition, the rehabilitation needs necessary to mitigate Project effects were also identified as part of road system planning.

For roads on Tahoe National Forest, the Forest Service Maintenance Levels that were applied during the evaluation are summarized in Table 2.2-1. For the Primary Project roads on BLM and private lands, the road maintenance levels were defined using road surface type and level of use.

Table 2.2-1. Forest Service Road Maintenance Levels.

Maintenance Level					
Parameters	**1**	**2**	**3**	**4**	**5**
Service Life	Intermittent Service-Closed Status	Constant Service or Intermittent Service-Open Status (Some uses may be restricted under 36CFR261.50)			
Traffic Type	Open for non-motorized uses. Closed to motorized traffic.	Administrative, permitted , dispersed recreation specialized, commercial haul	All National Forest Traffic - General Use, Commercial Haul		
Vehicle Type	Closed - N/A	High clearance, pick-up, 4x4, log trucks, etc.	All types - passenger cars to large commercial vehicles		
Traffic Volume	Closed - N/A	Traffic Volume increases with maintenance level			
Typical Surface	All types	None, Native, or Aggregate - may be dust abated		Aggregate - usually dust abated; paved	

Table 2.2-1. (continued)

Maintenance Level					
Parameters	**1**	**2**	**3**	**4**	**5**
Travel Speed	Closed - N/A	Travel Speed increases with maintenance level			
User Comfort and Convenience]	Closed - N/A	Not a consideration	Low priority	Moderate priority	High priority
Functional Classification	All types	Local Collector	Local Collector Arterial	Local Collector Arterial	Local Collector Arterial
Traffic Service Level	Closed - N/A	D	A,B,C - Traffic service level increases with maintenance level		
Management Strategy	Prohibit or Eliminate	Discourage or prohibit cars. Accept or discourage high clearance vehicles	Encourage, Accept	Encourage	Encourage

Source: USFS (1995)

Applicable engineering features (Table 2.2-2) were identified, characterized, and the condition assessed for all Primary Project Roads on private and federal lands. About 18 miles of road were inventoried, and road feature data were collected for 64 water crossings, 15 signs, 16 mass wasting features, and 55 other features (e.g., hazard tree points, intersections, site clearance hazards, and gates).

Table 2.2-2. Primary Project Roads engineering features inventoried.

Feature Category	Feature Type	Overall Feature Count (entire inventory)
Water crossings	Culverts	33
	Low-water crossing	21
	Bridges	10
Signs	Information	6
	Safety	9
Mass movement	Mass wasting features	16
Other features	Hazard tree points	23
	Gates	22

2.3 Road Maintenance Measures

All traffic control devices (i.e. signs, road markings) on all Primary Project Roads, regardless of land ownership, will be maintained according the schedules outlined below, to conform to the Manual on Uniform Traffic Control Devices (MUTCD). Additionally, when signs are replaced or modified, they will conform to the MUTCD, licensee internally defined standards and standards required by public land agencies (i.e. BLM, NFS) for roads on their lands. Any new roads proposed during the term of the new license will also conform to these standards.

Routine road maintenance measures will be implemented according to the road maintenance level. Road maintenance Best Management Practices (BMP) are used to guide the types of road treatments and the resource protection measures needed to mitigate the potential environmental impacts from road use. For roads on NFS lands, the designated road maintenance level was used to identify the type, frequency, and cost of road maintenance activities. On non-NFS lands, the road surface type and ongoing level of use were used to define the road maintenance measures and costs. Most of the non-NFS lands roads are native surface with moderate use (i.e., 1 to 2

times per week), but there are also several asphalt and gravel surface roads with moderate to high use levels (i.e., used every day during the work week) (Table 2.1-1). The Primary Project Roads on NFS lands are all maintenance level two (Table 2.2-1).

For consistency, the Forest Service road maintenance levels were cross-walked with the non-Forest Service road use levels. Three general road maintenance levels were created, and the associated cost of road maintenance was estimated.

1. For paved roads, road maintenance activities include: ditch grading and cleaning, culvert cleaning and repair, road drain cleaning and repair, road re-surfacing and patching, erosion control, and landslide stabilization. Paved surface roads will be inspected annually and maintained every three years.
2. For gravel surface roads, road maintenance activities include: ditch grading and cleaning, culvert cleaning and repair, road drain cleaning and repair, road re-surfacing and blading, erosion control, and landslide stabilization. Gravel surface roads will be inspected annually and maintained every three years.
3. For native surface roads, road maintenance activities include: ditch grading and cleaning, outsloping, culvert cleaning and repair, road drain cleaning and repair, road surface blading, erosion control, and landslide stabilization. Native surface roads will be inspected annually and maintained every five years.

The cost of maintaining the Primary Project Roads was annualized. For paved roads, the annual maintenance cost is $14,000 per mile; for gravel roads, it is $5,000 per mile; and for native roads, it is $2,500 per mile. The cost estimate assumed that native surface roads less than one mile long would have a minimum annual maintenance cost of $5,000. Given these presumptions, the estimated average cost to maintain the Primary Project Roads is about $90,000 per year.

2.4 Road Rehabilitation Measures

Specific Rehabilitation actions for Primary Project Roads in “poor” condition are summarized in Table 2.4-1 and then detailed below. The general requirements for road and trail rehabilitation are assumed to be consistent with the Special Use Permits that Licensee has with the Forest Service and the BLM.

Table 2.4-1. Primary Project Roads rehabilitation summary.

Road Name	ROAD_ID	Length of Road for Rehabilitation (mi)	Rehabilitation Action	Rehabilitation Cost
"B" Alarm Rd	YBBAL_001	1.5	Reduce erosion, stabilize road prism, and upgrade stream-road crossings	$178,395
Bowman Dam Access Rd	YBBND_001	0.2	Upgrade stream-road crossings	$39,250
Bowman Spaulding Berm Rd	YBBSC_001	0.3	Reduce erosion and improve road drainage	$30,000
Texas Creek Diversion Access Rd.	YBBSC_003	0.4	Upgrading culverts	$25,518

Table 2.4-1. (continued)

Road Name	ROAD_ID	Length of Road for Rehabilitation (mi)	Rehabilitation Action	Rehabilitation Cost
Box Car Section Rd.	YBBSC_004	0.1	Monitor unstable site	$10,080
Chicago Park Forebay Road	YBCPF_001	1.1	Reduce erosion, improve road drainage, and upgrade stream-road crossings	$55,581
Chicago Park Forebay Road	YBCPF_002	0.6	Decommission road	$157,176
Dutch Flat No. 2 Conduit Intake Access Rd	YBDFI_001	0.4	Reduce erosion, stabilize road prism, and upgrade stream-road crossings	$24,658
French Lake Rd.	YBFL_001	0.4	Reduce erosion and improve road drainage	$20,242
Pipeline Outlet Access Rd	YBMBP_001	0.3	Reduce erosion and improve low water ford	$78,363
Rollins Dam Spillway Access Rd	YBRDS_001	0.05	Stabilize landslide	$46,230
Stump Canyon Intake Access Rd.	YBSCS_001	0.6	Reduce erosion and improve road drainage	$125,976
Stump Canyon Siphon Low Level Access Rd.	YBSCS_002	0.2	Upgrade stream-road crossing	$24,783
Wilson Creek Diversion Rd	YBWCD_001	0.2	Upgrade stream-road crossing	$19,021

2.4.1 YBBAL_001- MM 0.10 to MM 1.48 ("B" Alarm Rd)

Problem Description

This road segment is drivable and used to access the Dutch Flat No. 2 Conduit. The road crosses a large inactive landslide, the Bear River, and then climbs upslope to the conduit. There are several culverts and active erosion features along this road. Several of the stream-road crossings and cross-road are damaged and/or undersized. The road prism has failed in two locations (MM 1.1 and MM 1.48).

Treatment Recommendations

To reduce erosion along this road, a new cross-drain culvert should be installed at MM 0.1, MM 0.19, and MM 0.34. The existing cross-road drains at MM 0.22, MM 0.38, MM 0.47, and MM 0.58 should be upgraded to 24 inch CMPs. There is a medium size rock fall at MM 0.69 adjacent to the Bear River. This rock fall should be excavated, and the slope geometry should be modified to improve slope stability and reduce erosion. At MM 0.70, there is a low water ford where the road crosses the Bear River. The road surface at the low-water crossing should be rocked on both sides of the stream channel, and a rolling dip should be installed to divert road runoff before it reaches the stream. The road prism has failed at MM 1.1 on the outlet side of a stream-road crossing. This crossing should be upgraded with a 72 inch culvert and hardened with a rocked critical dip. The culvert at MM 1.34 is plugged, and sub-surface flow is saturating the road fill. This culvert should be unplugged and improved. At MM 1.46, the road is undrivable, and the road fill is actively failing. Streamflow has scoured the underside of the conduit at this site and water flow over the road during high flow periods. This crossing should

be upgraded. The road prism has failed at MM 1.48. This crossing should be excavated and rip rap placed to stabilize slope failure adjacent to the conduit.

Estimated Treatment Cost (Initial Improvements)

The estimated cost to rehabilitate this road is $178,395.

2.4.2 YBBND_001 – MM 0.10 and MM 0.15 (Bowman Dam Access Rd)

Problem Description

This road segment is drivable and used to access the Bowman Dam. This is a high-elevation road that is under snow for a large portion of the year. Overall, this road is in good condition. There are two stream-road crossings that cross intermittent/ephemeral side drainages. The crossings are in poor condition.

Treatment Recommendations

Licensee recommends upgrading the stream-road crossings at MM 0.10 and MM 0.15 with larger culverts and installing critical dips.

Estimated Treatment Cost (Initial Improvements)

The estimated cost to rehabilitate this road is $39,250.

2.4.3 YBBSC_001 –MM 0.6 to 0.9 (Bowman Spaulding Berm Rd)

Problem Description

This road segment parallels the Bowman Tunnel Conduit to the Texas Creek Diversion. Near the upper end, there are two stream-road crossings that convey flow from an intermittent stream. There is one active landslide along this road. Dry gravel is rapidly eroding the cutslope along this road segment. Erosion control measures have been implemented, but they need to be maintained.

Treatment Recommendations

Between MM 0.6 and MM 0.9, Licensee recommends regrading the cutslope, installing a small retaining wall along the base and attempting to revegetate the cutslope face.

Estimated Treatment Cost (Initial Improvements)

The estimated cost to rehabilitate this road is $30,000.

2.4.4 YBBSC_003 –MM 0 to 0.5 (Texas Creek Diversion Access Rd)

This road leads to the Bowman-Spaulding Berm Rd. There are two culverts and four rolling dips along this segment.

Treatment Recommendations

Licensee recommends upgrading the culverts at MM 0.10 and MM 0.17 and installing rocked critical dips.

Estimated Treatment Cost (Initial Improvements)

The estimated cost to rehabilitate this road is $25,581.

2.4.5 YBBSC_004-MM 0.65 (Box Car Section Rd)

Problem Description

Most of this road segment is drivable and used to access the Bowman Spaulding Canal. At MM 0.75, the road prism failed when flow overtopped the canal and was discharged onto the adjacent hillslope. The excess flow triggered a medium size debris flow. The upper area of the failure was hardened with gunite, and the road remains closed at this location.

Treatment Recommendations

Licensee recommends implementing routine annual inspections and maintenance of the MM 0.65 landslide to ensure that the feature is not enlarging and the gunite apron is sound.

Estimated Treatment Cost (Initial Improvements)

The estimated cost to rehabilitate this road is $10,880.

2.4.6 YBCPF001–MM 0.23 to MM 1.3 (Chicago Park Forebay Rd)

Problem Description

This road accesses the Chicago Park Forebay; it is generally steep as it climbs to the top of the ridge and then flattens out as it parallels the forebay canal. This is a low-elevation road that is in the rain-on-snow zone. Overall, the road is in good condition, but there are several drainage features that need to be improved. Most of the road surface and drainage is in good condition, but the cross-road drain at MM 0.23 is 50 percent plugged, damaged, and has high runoff diversion potential. Near MM 0.82, road drainage has incised the roadside ditches, and gullies deliver sediment directly to the MM 0.78 cross-road drain.

Treatment Recommendations

Licensee recommends upgrading cross-road drains at MM 0.23, MM 0.36, and MM 0.37 and installing rocked critical dips. Licensee also recommends maintaining and installing new drainage features between MM 0.78 and MM 1.0, installing a rolling dip at MM 0.90, and controlling runoff from a large barren pad at MM 1.1. Licensee also recommends upgrading the cross drain at MM 0.71 and installing a rocked critical dip.

Estimated Treatment Cost (Initial Improvements)

The estimated cost to rehabilitate this road is $55,581.

2.4.7 YBCPF002-MM 0.0 to MM 0.58 (Chicago Park Forebay Rd)

Problem Description

This road used to be part of the YBCPF001, but was abandoned in the late 1970s after a debris slide closed the upper portion of the road. Overall, this road is in poor condition, and the hillslope cut by this road is actively eroding and unstable. There are three abandoned culverts on this road at MM 0.14, MM 0.20, and MM 0.30. Presently, all three culverts appear stable, but they are rated as poor due to the high debris potential associated with landslide movement. At MM 0.09, there is a very erosive through-cut that is delivering sediment to the cross drain on Road YBCPF001 at MM 0.71. Near MM 0.35, the road is damaged by an active debris slide. The road prism at this site has been displaced down slope about 40 feet. At MM 0.4, there is perennial spring flow along the road ditch.

Treatment Recommendations

Licensee recommends a close examination of the need for and utility of this road segment. If this road is to be abandoned, steps should be considered to decommission the road by excavating stream crossings with culverts, outsloping the road surface, and installing hardened drainage features. Licensee also recommends implementing erosion control measures at MM 0.09.

Estimated Treatment Cost (Initial Improvements)

The estimated cost to decommission this road is $157,176.

2.4.8 YBDFI_001-MM 0.20 to MM 0.30 (Dutch Flat No. 2 Conduit Intake Access Rd)

Problem Description

This road accesses the Dutch Flat No. 2 Conduit Intake; after crossing the Bear River, it is generally steep as it climbs to the intake. This is a low-elevation road that is in the rain-on-snow zone. Overall, the road is in good condition. The stream-road crossing at MM 0.20 has high

diversion potential. Between MM 0.20 and MM 0.27, there is active fill slope erosion and sediment delivery to the Bear River.

Treatment Recommendations

Licensee recommends installing a rocked critical dip at MM 0.20. It also recommends maintaining and installing new drainage features between MM 0.20 and MM 0.30. In this same section, the fill slopes should be graded and sidecast material should be end hauled. Rip rap scour control structures should be installed below the road drainage feature outlets to reduce fill slope erosion.

Estimated Treatment Cost (Initial Improvements)

The estimated cost to rehabilitate this road is $24,658.

2.4.9 YBFL_001-MM 0.48 to 0.88 (French Lake Rd)

Problem Description

This road accesses French Lake Dam. This is a high-elevation road that is under snow for most of the year. Overall, this road is in good condition. There are ten low-water crossings that cross one perennial and nine intermittent/ephemeral side drainages. There are also several springs. Most of the crossings are in good condition, but the MM 0.87 crossing is perennial and receives runoff and sediment from road drainage. Near MM 0.80 , road drainage and spring flow have incised the roadside ditches, and gullies deliver sediment directly to the MM 0.87 side drainage.

Treatment Recommendations

This report recommends maintaining and installing new drainage features between MM 0.85 and MM 1.25. The road surface at the MM 0.87 low-water crossing should be rocked on both sides of the stream channel, and a rolling dip should be installed to divert road runoff before it reaches the stream.

Estimated Treatment Cost (Initial Improvements)

The estimated cost to rehabilitate this road is $20,242.

2.4.10 YBMBP_001- MM 0.0 to 0.30 (Pipeline Outlet Access Rd)

Problem Description

This road segment is drivable and used to access the Pipeline Outlet Access Road near the Milton Bypass. Overall, this road is drivable and in good condition. There are four low-water crossings that cross small perennial side drainages. Erosion and sediment delivery were observed at the low water crossings. The first crossing at MM 0.05 had the highest erosion rate

and sediment delivery potential. Road surface erosion adjacent to this crossing delivers sediment to the Middle Yuba River. Between MM 0.19 and MM 0.30, road ruts and spring flow have incised the road surface and ditches.

Treatment Recommendations

Licensee recommends rehabilitating the MM 0.05 low water ford by re-grading the ingress and egress road segments; end hauling sidecast material; and hardening the crossing. The low-water crossing should be rocked on both sides of the stream channel, and, if possible, a rolling dip should be installed to divert road runoff before it reaches the stream. Road surface drainage should be improved between MM 0.19 and MM 0.30.

Estimated Treatment Cost (Initial Improvements)

The estimated cost to rehabilitate this road is $78,363.

2.4.11 YBRDS_001-MM 0.22 (Rollins Dam Spillway Access Rd)

Problem Description

This road segment parallels the southwest arm of Rollins Reservoir. There is one active landslide along this road at MM 0.22. The fillslope has slumped into the reservoir along this road segment.

Treatment Recommendations

Licensee recommends further geotechnical investigation and probably the design of a retaining wall.

Estimated Treatment Cost (Initial Improvements)

The estimated cost to rehabilitate this road is $46,230.

2.4.12 YBSCS_001-MM 0.21to 0.82 (Stump Canyon Intake Access Rd)

Problem Description

This road segment is drivable and used to access the Stump Canyon Intake. Generally, there is active gully erosion along most of the road surface. There is one low water ford along the road at MM 0.47 where road surface erosion is delivered to the stream channel. At MM 0.65, the road crosses an inner gorge area with very high erosion potential and sediment delivery to Stump Canyon Creek. Between MM 0.66 and MM 0.82, the road lacks drainage features and the inboard ditch is unstable.

Treatment Recommendations

New drainage features should be installed between MM 0.21 and 0.46 to reduce road surface gully erosion. The road surface at the MM 0.47 low-water crossing should be rocked on both sides of the stream channel, and a rolling dip should be installed to divert road runoff before it reaches the stream. Attempts should be made to control erosion at MM 0.65, where the road is on a very steep hill with erosive soils. This road segment should be insloped and drained so that runoff is unable to drain over the fill slope. Sidecast material along the road edge should be excavated and end hauled. Between MM 0.66 and MM 0.82, new drainage features should be installed to prevent gully erosion.

Estimated Treatment Cost (Initial Improvements)

The estimated cost to rehabilitate this road is $125,976.

2.4.13 YBSCS_002-MM 0.10 (Stump Canyon Intake Access Rd)

Problem Description

This road is drivable and used to access the Stump Canyon Siphon Low Level Valve. At MM 0.10, there is a stream-road crossing in poor condition.

Treatment Recommendations

Licensee recommends upgrading the stream-road crossing at MM 0.10 with a 72 inch culvert.

Estimated Treatment Cost (Initial Improvements)

The estimated cost to rehabilitate this road is $24,783.

2.4.14 YBWCD_001-MM 0.08 (Wilson Creek Diversion Rd)

Problem Description

This road is drivable and used to access the Wilson Creek Diversion. At MM 0.08, there is a stream-road crossing in poor condition.

Treatment Recommendations

Upgrade the stream-road crossing at MM 0.08 with a 48 inch culvert.

Estimated Treatment Cost (Initial Improvements)

The estimated cost to rehabilitate this road is $19,021.

2.5 Sensitive Area Protection

Aquatic passage at stream crossings was not addressed within the Licensee's Roads and Trails Study Plan, developed in collaboration with Forest Service, BLM and other resource agencies. Culverts and other structures at perennial stream crossings, when not designed with aquatic passage in mind, can create barriers to the movement of fish and amphibians. An understanding of the impacts of Primary Project Roads on streams and aquatic species is an important part of capturing project impacts on the surrounding environment. The USFS National Inventory and Assessment Procedure (NIAP) was designed to address the following key questions: "how and where does the road system restrict the migration and movement of aquatic organisms?" and "what aquatic species are affected and to what extent?" (USFS 2005).

Man made structures at road crossings can create a variety of barriers to aquatic species and their movements depending on the design of the structure and the needs of the species present. Rainbow trout and brown trout are generally blocked by excessive velocities within culverts and jumping barriers at the outlets. Amphibians that may occur in the Project streams are all capable of overland movement following metamorphosis from the larval stage. As such, these species do not require culverts for upstream movement.

NID's Yuba-Bear Project Roads and Trails Tech Memo 9-1 (NID 2010) did not include any roads on NFS or BLM lands that crossed perennial streams. Should additional stream crossings be identified, the need for NIAP evaluation will first be addressed through analysis of available data for stream fish populations in the project area above and below the noted stream crossing. Licensee will use the NIAP criteria for fish if the stream is identified as a fish-bearing stream and if reasonable fish habitat exists above the culvert in question.

2.6 Implementation Schedule

The schedule for performing such work will be within five years of License issuance and FERC approval of the Plan.

SECTION 3

REFERENCES CITED

Nevada Irrigation District (NID) and Pacific Gas and Electric Company (PG&E). 2010. Technical Memorandum 9-1 – Roads and Trails. Prepared by NID and PG&E for the Relicensings of NID's Yuba-Bear Hydroelectric Project (FERC Project No. 2266) and PG&E's Drum-Spaulding Project (FERC Project No. 2310).

United States Department of Agriculture (USDA) Forest Service (FS). 2005. National Inventory and Assessment Procedure. National Technology and Development Program, 444 E. Bonita Avenue, San Dimas, CA 91773.

United States Department of the Interior, Bureau of Land Management (BLM). 2008. Sierra Resource Management Plan and Final Environmental Impact Statement. Folsom Field Office. Folsom, California.

United States Department of Transportation, Federal Highway Administration . 2009. Manual on Uniform Traffic Control Devices for Streets and Highways. 1200 New Jersey Ave., SE Washington, DC 20590

Page Left Blank

Yuba-Bear Hydroelectric Project
FERC Project No. 2266-096

Amended Transportation Management Plan

Attachment A

Inventory Table

ID	ROAD_ID	Name	FS_RTE_NUM	SURFACE TYPE	ROAD WIDTH	GRADING	RUTS	MAINT LVL	Length (Mi)	BMP	EMP	G Drawing	Modify Boundary	Treat	Ownership	Condition	Development
86	YBBAL_001	"B" Alarm Rd	0	Native	12	4 - 8	Y	N/A	0.00	0.78	1.48	19	Modified	Yes	USDA Forest Service	Poor	Dutch Flat
87	YBBAL_001	"B" Alarm Rd	0	Native	12	4 - 8	Y	N/A	0.10	0.00	0.78	19	Modified	Yes	PGE	Poor	Dutch Flat
88	YBBAL_001	"B" Alarm Rd	0	Native	12	4 - 8	Y	N/A	0.47	0.78	1.48	19	Modified	Yes	USDA Forest Service	Poor	Dutch Flat
89	YBBAL_001	"B" Alarm Rd	0	Native	12	4 - 8	Y	N/A	0.07	0.78	1.48	19	Modified	Yes	USDA Forest Service	Poor	Dutch Flat
121	YBBAL_001	"B" Alarm Rd	0	Native	12	4 - 8	Y	N/A	0.37	0.00	0.78	19	Modified	Yes	PGE	Poor	Dutch Flat
122	YBBAL_001	"B" Alarm Rd	0	Native Soil	10	0-2	Y	N/A	0.15	0.78	1.48	19	Modified	Yes	USDA Forest Service	Poor	Dutch Flat
123	YBBAL_001	"B" Alarm Rd	0	Native	12	4 - 8	Y	N/A	0.11	0.00	0.78	19	Modified	Yes	PGE	Poor	Dutch Flat
124	YBBAL_001	"B" Alarm Rd	0	Native	11	>15	Y	N/A	0.06	0.00	0.78	19	Modified	Yes	PGE	Poor	Dutch Flat
125	YBBAL_001	"B" Alarm Rd	0	Native	12	2 - 4	N	N/A	0.06	0.00	0.78	19	Modified	Yes	PGE	Poor	Dutch Flat
126	YBBAL_001	"B" Alarm Rd	0	Native	12	2 - 4	N	N/A	0.08	0.00	0.78	19	Modified	Yes	PGE	Poor	Dutch Flat
95	YBBND_001	Bowman Dam Access Rd	0	Native	11	2 - 4	Y	N/A	0.21	0.00	0.34	6	Existing	Yes	USDA Forest Service	Poor	Bowman
127	YBBND_001	Bowman Dam Access Rd	0	Gravel	12	0-2	N	N/A	0.12	0.00	0.34	6	Existing	No	USDA Forest Service	Good	Bowman
82	YBBNK_001	Bunkhouse Rd	0	Gravel	12	2 - 4	N	N/A	0.11	0.00	0.11	10	Modified	No	USDA Forest Service	Good	Dutch Flat
70	YBBPH_001	Bowman Powerhouse Access Rd	0	Gravel	16	4 - 8	N	2	0.20	0.00	0.36	10	Existing	No	NID	Good	Dutch Flat
96	YBBPH_001	Bowman Powerhouse Access Rd	0	Gravel	11	2 - 4	N	N/A	0.16	0.00	0.36	10	Existing	No	NID	Good	Dutch Flat
5	YBBSC_001	Bowman-Spaulding Berm Rd	0	Gravel	15	0-2	N	N/A	0.06	0.00	0.26	12	Existing	No	NID	Good	Dutch Flat
6	YBBSC_001	Bowman-Spaulding Berm Rd	0	Gravel	8	0-2	N	N/A	0.02	0.00	0.26	12	Existing	No	NID	Good	Dutch Flat
7	YBBSC_001	Bowman-Spaulding Berm Rd	0	Gravel	8	0-2	N	N/A	0.01	0.00	0.26	12	Existing	No	NID	Good	Dutch Flat
8	YBBSC_001	Bowman-Spaulding Berm Rd	0	Gravel	8	0-2	N	N/A	0.10	0.26	0.94	12	Existing	No	Patented	Good	Dutch Flat
9	YBBSC_001	Bowman-Spaulding Berm Rd	0	Asphalt	8	8 - 15	N	N/A	0.02	0.26	0.94	12	Existing	No	Patented	Good	Dutch Flat
10	YBBSC_001	Bowman-Spaulding Berm Rd	0	Native	8	0-2	Y	N/A	0.21	0.26	0.94	12	Existing	No	Patented	Good	Dutch Flat
11	YBBSC_001	Bowman-Spaulding Berm Rd	0	Native	15	0-2	Y	N/A	0.16	0.26	0.94	12	Existing	Yes	Patented	Good	Dutch Flat
12	YBBSC_001	Bowman-Spaulding Berm Rd	0	Native	8	0-2	N	N/A	0.08	0.26	0.94	12	Existing	Yes	Patented	Good	Dutch Flat
98	YBBSC_001	Bowman-Spaulding Berm Rd	0	Gravel	10	0-2	N	N/A	0.17	0.00	0.26	12	Existing	No	NID	Good	Dutch Flat
144	YBBSC_001	Bowman-Spaulding Berm Rd	0	Native	8	0-2	Y	N/A	0.06	0.26	0.94	12	Existing	Yes	Patented	Good	Dutch Flat
145	YBBSC_001	Bowman-Spaulding Berm Rd	0	Native	8	0-2	N	N/A	0.04	0.26	0.94	12	Existing	No	Patented	Good	Dutch Flat
97	YBBSC_003	Texas Creek Diversion Access Rd	0	Gravel	11	8 - 15	N	N/A	0.36	0.00	0.35	12	Modified	Yes	NID	Poor	Dutch Flat
99	YBBSC_004	Box Car Section Rd	0	Gravel	10	0-2	N	N/A	0.38	0.00	0.38	13	Existing	No	USDA Forest Service	Poor	Dutch Flat
100	YBBSC_004	Box Car Section Rd	0	Gravel	10	0-2	N	N/A	0.25	1.08	1.32	13	Existing	No	USDA Forest Service	Poor	Dutch Flat
101	YBBSC_004	Box Car Section Rd	0	Gravel	10	0-2	N	N/A	0.40	0.38	1.08	13	Existing	No	Patented	Poor	Dutch Flat
146	YBBSC_004	Box Car Section Rd	0	Gravel	10	0-2	N	N/A	0.24	0.38	1.08	13	Existing	No	Patented	Poor	Dutch Flat
147	YBBSC_004	Box Car Section Rd	0	Gravel	10	0-2	N	N/A	0.05	0.38	1.08	13	Existing	Yes	Patented	Poor	Dutch Flat
103	YBBSC_006	Bowman-Spaulding Berm Rd	0	Gravel	10	0-2	N	N/A	0.44	0.00	0.44	14, 15	Modified	No	USDA Forest Service	Good	Dutch Flat
104	YBBSC_006	Bowman-Spaulding Berm Rd	0	Gravel	10	0-2	N	N/A	0.47	0.44	0.91	14, 15	Modified	No	PGE	Good	Dutch Flat
105	YBBSC_006	Bowman-Spaulding Berm Rd	0	Gravel	10	0-2	N	N/A	0.39	1.51	1.90	14, 15	Modified	No	PGE	Good	Dutch Flat
106	YBBSC_006	Bowman-Spaulding Berm Rd	0	Gravel	10	0-2	N	N/A	0.82	2.69	3.51	14, 15	Modified	No	PGE	Good	Dutch Flat
107	YBBSC_006	Bowman-Spaulding Berm Rd	0	Gravel	10	0-2	N	N/A	0.24	2.45	2.69	14, 15	Modified	No	Patented	Good	Dutch Flat
120	YBBSC_006	Bowman-Spaulding Berm Rd	0	Native Soil	11	8 - 15	Y	N/A	0.14	0.91	1.51	14, 15	Modified	No	USDA Forest Service	Good	Dutch Flat
137	YBBSC_006	Bowman-Spaulding Berm Rd	0	Gravel	10	0-2	N	N/A	0.16	0.91	1.51	14, 15	Modified	No	USDA Forest Service	Good	Dutch Flat
138	YBBSC_006	Bowman-Spaulding Berm Rd	0	Gravel	10	0-2	N	N/A	0.29	0.91	1.51	14, 15	Modified	No	USDA Forest Service	Good	Dutch Flat
139	YBBSC_006	Bowman-Spaulding Berm Rd	0	Gravel	10	0-2	N	N/A	0.55	1.90	2.45	14, 15	Modified	No	USDA Forest Service	Good	Dutch Flat
55	YBCPF_001	Chicago Park Forebay Rd	0	Native	12	8 - 15	N	N/A	0.08	0.00	1.64	24, 25	Modified	No	US Bureau of Land	Good	Chicago Park
56	YBCPF_001	Chicago Park Forebay Rd	0	Native	12	8 - 15	Y	N/A	0.37	0.00	1.64	24, 25	Modified	Yes	US Bureau of Land	Poor	Chicago Park
57	YBCPF_001	Chicago Park Forebay Rd	0	Native	15	8 - 15	Y	N/A	0.21	0.00	1.64	24, 25	Modified	Yes	US Bureau of Land	Poor	Chicago Park
58	YBCPF_001	Chicago Park Forebay Rd	0	Gravel	15	4 - 8	N	N/A	0.34	0.00	1.64	24, 25	Modified	Yes	US Bureau of Land	Poor	Chicago Park
59	YBCPF_001	Chicago Park Forebay Rd	0	Gravel	12	0-2	N	N/A	0.17	0.00	1.64	24, 25	Modified	No	US Bureau of Land	Poor	Chicago Park
60	YBCPF_001	Chicago Park Forebay Rd	0	Native Soil	10	>15	Y	N/A	0.07	0.00	1.64	24, 25	Modified	No	US Bureau of Land	Poor	Chicago Park
61	YBCPF_001	Chicago Park Forebay Rd	0	Native Soil	10	>15	Y	N/A	0.00	0.00	1.64	24, 25	Modified	No	US Bureau of Land	Poor	Chicago Park

ID	ROAD_ID	Name	FS_RTE_NUM	SURFACE TYPE	ROAD WIDTH	GRADING	RUTS	MAINT LVL	Length (Mi)	BMP	EMP	G Drawing	Modify Boundary	Treat	Ownership	Condition	Development
62	YBCPF_001	Chicago Park Forebay Rd	0	Native Soil	10	>15	Y	N/A	0.11	1.64	1.75	24, 25	Modified	No	Patented	Poor	Chicago Park
71	YBCPF_001	Chicago Park Forebay Rd	0	Native	15	8 - 15	Y	N/A	0.15	0.00	1.64	24, 25	Modified	Yes	US Bureau of Land	Poor	Chicago Park
148	YBCPF_001	Chicago Park Forebay Rd	0	Native	12	8 - 15	Y	N/A	0.17	0.00	1.64	24, 25	Modified	No	US Bureau of Land	Poor	Chicago Park
149	YBCPF_001	Chicago Park Forebay Rd	0	Gravel	12	0-2	N	N/A	0.07	0.00	1.64	24, 25	Modified	Yes	US Bureau of Land	Poor	Chicago Park
75	YBCPF_002	Chicago Park Forebay Rd	0	Native	16	2 - 4	Y	N/A	0.28	0.00	0.57	24	Out	Yes	US Bureau of Land	Poor	Out
76	YBCPF_002	Chicago Park Forebay Rd	0	Gravel	18	4 - 8	Y	N/A	0.01	0.00	0.57	24	Out	Yes	US Bureau of Land	Poor	Out
77	YBCPF_002	Chicago Park Forebay Rd	0	Native Soil	4	2 - 4	N	N/A	0.03	0.00	0.57	24	Out	Yes	US Bureau of Land	Poor	Out
78	YBCPF_002	Chicago Park Forebay Rd	0	Native	16	2 - 4	N	N/A	0.25	0.00	0.57	24	Out	Yes	US Bureau of Land	Poor	Out
72	YBCPF_003	Chicago Park Forebay Rd	0	Native	16	2 - 4	N	N/A	0.02	0.00	0.08	24	Modified	No	US Bureau of Land	Good	Chicago Park
73	YBCPF_003	Chicago Park Forebay Rd	0	Native	16	2 - 4	N	N/A	0.00	0.00	0.08	24	Modified	No	US Bureau of Land	Good	Chicago Park
74	YBCPF_003	Chicago Park Forebay Rd	0	Native	16	2 - 4	N	N/A	0.10	0.08	0.18	24	Modified	No	Patented	Good	Chicago Park
79	YBCPF_003	Chicago Park Forebay Rd	0	Native	18	4 - 8	N	N/A	0.06	0.00	0.08	24	Modified	No	US Bureau of Land	Good	Chicago Park
51	YBCPH_001	Chicago Park Powerhouse Access Rd	0	Asphalt	12	2 - 4	N	N/A	0.15	0.01	0.16	25	Modified	No	US Bureau of Land	Good	Chicago Park
52	YBCPH_001	Chicago Park Powerhouse Access Rd	0	Asphalt	12	2 - 4	N	N/A	0.01	0.00	0.01	25	Modified	No	NID	Good	Chicago Park
83	YBDFI_001	Dutch Flat No. 2 Conduit Intake Access Rd	0	Native	12	4 - 8	Y	N/A	0.03	0.35	0.38	10	Existing	Yes	PGE	Poor	Dutch Flat
84	YBDFI_001	Dutch Flat No. 2 Conduit Intake Access Rd	0	Native	12	4 - 8	Y	N/A	0.21	0.00	0.35	10	Existing	Yes	USDA Forest Service	Poor	Dutch Flat
85	YBDFI_001	Dutch Flat No. 2 Conduit Intake Access Rd	0	Native	12	4 - 8	Y	N/A	0.00	0.35	0.38	10	Existing	Yes	PGE	Poor	Dutch Flat
130	YBDFI_001	Dutch Flat No. 2 Conduit Intake Access Rd	0	Native	12	4 - 8	N	N/A	0.14	0.00	0.35	10	Existing	Yes	USDA Forest Service	Poor	Dutch Flat
13	YBFL_001	French Lake Rd	0843-020	Native	12	4 - 8	N	2	0.09	1.87	2.09	7	Modified	No	NID	Good	Bowman
14	YBFL_001	French Lake Rd	0843-020	Native	12	4 - 8	N	2	0.08	1.87	2.09	7	Modified	No	NID	Good	Bowman
15	YBFL_001	French Lake Rd	0843-020	Native	12	4 - 8	N	2	0.01	1.87	2.09	7	Modified	No	NID	Good	Bowman
16	YBFL_001	French Lake Rd	0843-020	Native	12	4 - 8	N	2	0.01	1.87	2.09	7	Modified	No	NID	Good	Bowman
17	YBFL_001	French Lake Rd	0843-020	Native	12	8 - 15	N	2	0.04	0.38	1.87	7	Modified	No	USDA Forest Service	Good	Bowman
18	YBFL_001	French Lake Rd	0843-020	Native	12	8 - 15	N	2	0.04	1.87	2.09	7	Modified	No	NID	Good	Bowman
19	YBFL_001	French Lake Rd	0843-020	Native	12	4 - 8	N	2	0.07	0.38	1.87	7	Modified	No	USDA Forest Service	Good	Bowman
20	YBFL_001	French Lake Rd	0843-020	Native	11	4 - 8	N	2	0.19	0.38	1.87	7	Modified	No	USDA Forest Service	Good	Bowman
21	YBFL_001	French Lake Rd	0843-020	Native	11	4 - 8	N	2	0.01	0.38	1.87	7	Modified	No	USDA Forest Service	Good	Bowman
22	YBFL_001	French Lake Rd	0843-020	Native	11	4 - 8	N	2	0.03	0.38	1.87	7	Modified	No	USDA Forest Service	Good	Bowman
23	YBFL_001	French Lake Rd	0843-020	Native	11	8 - 15	N	2	0.12	0.38	1.87	7	Modified	No	USDA Forest Service	Good	Bowman
24	YBFL_001	French Lake Rd	0843-020	Native	12	4 - 8	N	2	0.11	0.38	1.87	7	Modified	No	USDA Forest Service	Good	Bowman
25	YBFL_001	French Lake Rd	0843-020	Native	12	2 - 4	N	2	0.08	0.38	1.87	7	Modified	No	USDA Forest Service	Good	Bowman
26	YBFL_001	French Lake Rd	0843-020	Native Soil	12	4 - 8	Y	2	0.13	0.38	1.87	7	Modified	Yes	USDA Forest Service	Poor	Bowman
27	YBFL_001	French Lake Rd	0843-020	Native Soil	12	4 - 8	N	2	0.05	0.38	1.87	7	Modified	Yes	USDA Forest Service	Poor	Bowman
28	YBFL_001	French Lake Rd	0843-020	Native	12	8 - 15	N	2	0.08	0.38	1.87	7	Modified	Yes	USDA Forest Service	Poor	Bowman
29	YBFL_001	French Lake Rd	0843-020	Native	12	4 - 8	N	2	0.12	0.38	1.87	7	Modified	Yes	USDA Forest Service	Poor	Bowman
30	YBFL_001	French Lake Rd	0843-020	Native	12	4 - 8	N	2	0.02	0.38	1.87	7	Modified	Yes	USDA Forest Service	Poor	Bowman
31	YBFL_001	French Lake Rd	0843-020	Native	12	4 - 8	N	2	0.01	0.38	1.87	7	Modified	Yes	USDA Forest Service	Good	Bowman
32	YBFL_001	French Lake Rd	0843-020	Native Soil	11	2 - 4	N	2	0.06	0.38	1.87	7	Modified	No	USDA Forest Service	Good	Bowman
33	YBFL_001	French Lake Rd	0843-020	Native Soil	12	2 - 4	N	2	0.03	0.38	1.87	7	Modified	No	USDA Forest Service	Good	Bowman
34	YBFL_001	French Lake Rd	0843-020	Native Soil	12	2 - 4	N	2	0.01	0.38	1.87	7	Modified	No	USDA Forest Service	Good	Bowman
35	YBFL_001	French Lake Rd	0843-020	Native Soil	12	2 - 4	N	2	0.04	0.38	1.87	7	Modified	No	USDA Forest Service	Good	Bowman
36	YBFL_001	French Lake Rd	0843-020	Native	12	2 - 4	N	2	0.08	0.38	1.87	7	Modified	No	USDA Forest Service	Good	Bowman
37	YBFL_001	French Lake Rd	0843-020	Native	12	4 - 8	N	2	0.05	0.38	1.87	7	Modified	No	USDA Forest Service	Good	Bowman
38	YBFL_001	French Lake Rd	0843-020	Native Soil	12	2 - 4	N	2	0.07	0.38	1.87	7	Modified	No	USDA Forest Service	Good	Bowman
39	YBFL_001	French Lake Rd	0843-020	Native	11	8 - 15	N	N/A	0.01	0.00	0.38	7	Modified	No	Patented	Good	Bowman
40	YBFL_001	French Lake Rd	0843-020	Native	11	8 - 15	N	2	0.01	0.00	0.38	7	Modified	No	Patented	Good	Bowman
41	YBFL_001	French Lake Rd	0843-020	Native	11	8 - 15	N	2	0.11	0.38	1.87	7	Modified	No	USDA Forest Service	Good	Bowman
42	YBFL_001	French Lake Rd	0843-020	Native	11	8 - 15	N	2	0.01	0.00	0.38	7	Modified	No	Patented	Good	Bowman

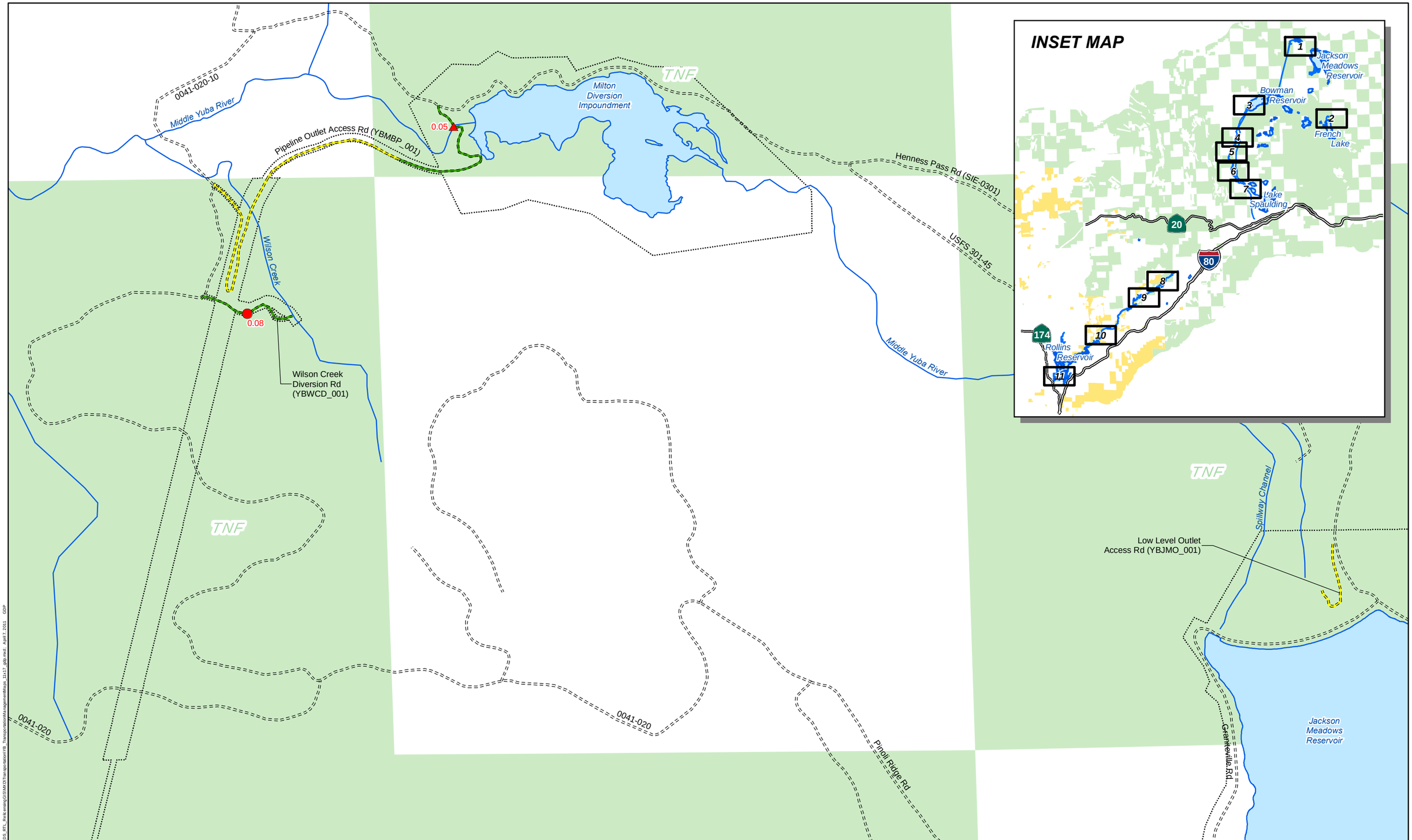
ID	ROAD_ID	Name	FS_RTE_NUM	SURFACE TYPE	ROAD WIDTH	GRADING	RUTS	MAINT LVL	Length (Mi)	BMP	EMP	G Drawing	Modify Boundary	Treat	Ownership	Condition	Development
43	YBFL_001	French Lake Rd	0843-020	Native	11	8 - 15	N	2	0.01	0.00	0.38	7	Modified	No	Patented	Good	Bowman
94	YBJMO_001	Low Level Outlet Access Rd	0	Gravel	12	4 - 8	N	N/A	0.15	0.00	0.15	2	Existing	No	USDA Forest Service	Good	Bowman
90	YBMBP_001	Pipeline Outlet Access Rd	0	Native Soil	11	2 - 4	Y	N/A	0.15	0.00	0.35	4	Modified	Yes	USDA Forest Service	Good	Bowman
91	YBMBP_001	Pipeline Outlet Access Rd	0	Native Soil	11	2 - 4	Y	N/A	0.42	0.56	0.98	4	Modified	No	USDA Forest Service	Good	Bowman
92	YBMBP_001	Pipeline Outlet Access Rd	0	Native Soil	11	2 - 4	Y	N/A	0.20	0.35	0.56	4	Modified	No	NID	Good	Bowman
129	YBMBP_001	Pipeline Outlet Access Rd	0	Native	11	4 - 8	Y	N/A	0.15	0.00	0.35	4	Modified	Yes	USDA Forest Service	Poor	Bowman
150	YBMBP_001	Pipeline Outlet Access Rd	0	Native Soil	11	2 - 4	Y	N/A	0.05	0.00	0.35	4	Modified	No	USDA Forest Service	Good	Bowman
63	YBRDS_001	Rollins Dam Spillway Access Rd	0	Native Soil	25	0-2	N	N/A	0.27	0.00	0.93	27	Existing	No	NID	Good	Rollins
64	YBRDS_001	Rollins Dam Spillway Access Rd	0	Native Soil	25	0-2	N	N/A	0.13	0.00	0.93	27	Existing	No	NID	Good	Rollins
65	YBRDS_001	Rollins Dam Spillway Access Rd	0	Native Soil	25	0-2	N	N/A	0.03	0.00	0.93	27	Existing	No	NID	Good	Rollins
66	YBRDS_001	Rollins Dam Spillway Access Rd	0	Native Soil	15	0-2	N	N/A	0.24	0.00	0.93	27	Existing	No	NID	Good	Rollins
67	YBRDS_001	Rollins Dam Spillway Access Rd	0	Native Soil	18	0-2	N	N/A	0.04	0.00	0.93	27	Existing	Yes	NID	Poor	Rollins
68	YBRDS_001	Rollins Dam Spillway Access Rd	0	Native Soil	18	0-2	N	N/A	0.01	0.00	0.93	27	Existing	No	NID	Good	Rollins
69	YBRDS_001	Rollins Dam Spillway Access Rd	0	Native Soil	18	0-2	N	N/A	0.21	0.00	0.93	27	Existing	No	NID	Good	Rollins
53	YBRMS_001	Connroy Pl	0	Gravel	12	>15	N	N/A	0.06	0.00	0.06	27	Existing	No	NID	Good	Rollins
80	YBRPA_001	Rollins Powerhouse Access Rd	0	Asphalt	14	0-2	N	N/A	0.13	0.00	0.13	27	Existing	No	NID	Good	Rollins
81	YBRPA_001	Rollins Powerhouse Access Rd	0	Asphalt	14	0-2	N	N/A	0.00	0.00	0.13	27	Existing	No	NID	Good	Rollins
109	YBSCS_001	Stump Canyon Intake Access Rd	0	Native	12	8 - 15	Y	N/A	0.16	0.43	0.82	20	Modified	Yes	PGE	Poor	Dutch Flat
110	YBSCS_001	Stump Canyon Intake Access Rd	0	Native	12	8 - 15	Y	N/A	0.06	0.43	0.82	20	Modified	Yes	PGE	Poor	Dutch Flat
113	YBSCS_001	Stump Canyon Intake Access Rd	0	Native	12	8 - 15	N	N/A	0.17	0.00	0.21	20	Modified	No	PGE	Poor	Dutch Flat
114	YBSCS_001	Stump Canyon Intake Access Rd	0	Native	12	8 - 15	N	N/A	0.11	0.21	0.43	20	Modified	Yes	USDA Forest Service	Poor	Dutch Flat
115	YBSCS_001	Stump Canyon Intake Access Rd	0	Native	12	8 - 15	N	N/A	0.03	0.21	0.43	20	Modified	Yes	USDA Forest Service	Poor	Dutch Flat
116	YBSCS_001	Stump Canyon Intake Access Rd	0	Native	12	8 - 15	N	N/A	0.02	0.21	0.43	20	Modified	Yes	USDA Forest Service	Poor	Dutch Flat
131	YBSCS_001	Stump Canyon Intake Access Rd	0	Native	12	8 - 15	N	N/A	0.04	0.63	0.91	20	Out	Yes	PGE	Poor	Out
132	YBSCS_001	Stump Canyon Intake Access Rd	0	Native	12	8 - 15	Y	N/A	0.13	0.43	0.82	20	Modified	Yes	PGE	Poor	Dutch Flat
133	YBSCS_001	Stump Canyon Intake Access Rd	0	Native	12	8 - 15	N	N/A	0.00	0.21	0.43	20	Modified	Yes	USDA Forest Service	Poor	Dutch Flat
134	YBSCS_001	Stump Canyon Intake Access Rd	0	Native	12	8 - 15	N	N/A	0.02	0.43	0.82	20	Modified	Yes	PGE	Poor	Dutch Flat
135	YBSCS_001	Stump Canyon Intake Access Rd	0	Native	12	8 - 15	N	N/A	0.06	0.21	0.43	20	Modified	No	USDA Forest Service	Poor	Dutch Flat
136	YBSCS_001	Stump Canyon Intake Access Rd	0	Native	12	8 - 15	N	N/A	0.02	0.00	0.21	20	Modified	No	PGE	Poor	Dutch Flat
141	YBSCS_001	Stump Canyon Intake Access Rd	0	Native	12	8 - 15	N	N/A	0.02	0.00	0.21	20	Modified	No	PGE	Poor	Dutch Flat
143	YBSCS_001	Stump Canyon Intake Access Rd	0	Native	12	8 - 15	N	N/A	0.00	0.00	0.21	20	Out	No	PGE	Poor	Out
151	YBSCS_001	Stump Canyon Intake Access Rd	0	Native	12	8 - 15	N	N/A	0.00	0.00	0.21	20	Modified	No	PGE	Poor	Dutch Flat
152	YBSCS_001	Stump Canyon Intake Access Rd	0	Native	12	8 - 15	N	N/A	0.03	0.43	0.82	20	Modified	Yes	PGE	Poor	Dutch Flat
111	YBSCS_002	Stump Canyon Siphon Low Level Valve Access Rd	0	Native Rock	11	8 - 15	N	N/A	0.15	0.00	0.16	20	Modified	Yes	PGE	Poor	Dutch Flat
112	YBSCS_002	Stump Canyon Siphon Low Level Valve Access Rd	0	Native Rock	11	8 - 15	N	N/A	0.01	0.00	0.16	20	Modified	Yes	PGE	Poor	Dutch Flat
117	YBSCS_003	Stump Canyon Siphon Outlet Access Rd	0	Gravel	15	0-2	N	N/A	0.37	0.08	0.45	20	Existing	No	USDA Forest Service	Good	Dutch Flat
118	YBSCS_003	Stump Canyon Siphon Outlet Access Rd	0	Gravel	15	0-2	N	N/A	0.08	0.00	0.08	20	Existing	No	NID	Good	Dutch Flat
119	YBSCS_003	Stump Canyon Siphon Outlet Access Rd	0	Gravel	15	0-2	N	N/A	0.12	0.45	0.57	20	Existing	No	NID	Good	Dutch Flat
142	YBSCS_003	Stump Canyon Siphon Outlet Access Rd	0	Gravel	15	0-2	N	N/A	0.13	0.57	0.69	20	Existing	No	USDA Forest Service	Good	Dutch Flat
93	YBWCD_001	Wilson Creek Diversion Rd	0	Native Soil	10	4 - 8	Y	N/A	0.18	0.00	0.18	4	Modified	Yes	USDA Forest Service	Poor	Bowman
1	YBZION_001	Canal Access Rd	0	Gravel	14	8 - 15	N	N/A	0.12	0.00	0.32	16	Modified	No	PGE	Good	Dutch Flat
2	YBZION_001	Canal Access Rd	0	Gravel	12	8 - 15	N	N/A	0.11	0.00	0.32	16	Modified	No	PGE	Good	Dutch Flat
3	YBZION_001	Canal Access Rd	0	Gravel	12	2 - 4	N	N/A	0.01	0.00	0.32	16	Modified	No	PGE	Good	Dutch Flat
4	YBZION_001	Canal Access Rd	0	Gravel	12	0-2	N	N/A	0.09	0.00	0.32	16	Modified	No	PGE	Good	Dutch Flat
108	YBZION_002	Zion Rd	0	Native	10	4 - 8	Y	N/A	0.15	0.00	0.15	16	Out	No	PGE	Good	Out

Yuba-Bear Hydroelectric Project
FERC Project No. 2266-096

Amended Transportation Management Plan

Attachment B

Road Rehabilitation Figures



Attachment B
Road Rehabilitation Figures

Data Sources: Map information was compiled from the best available sources. No Warranty is made for its accuracy or completeness. Roads - USFS; Data is UTM meters, NAD83, Zone 10 North

Map prepared by: HDR|DTA

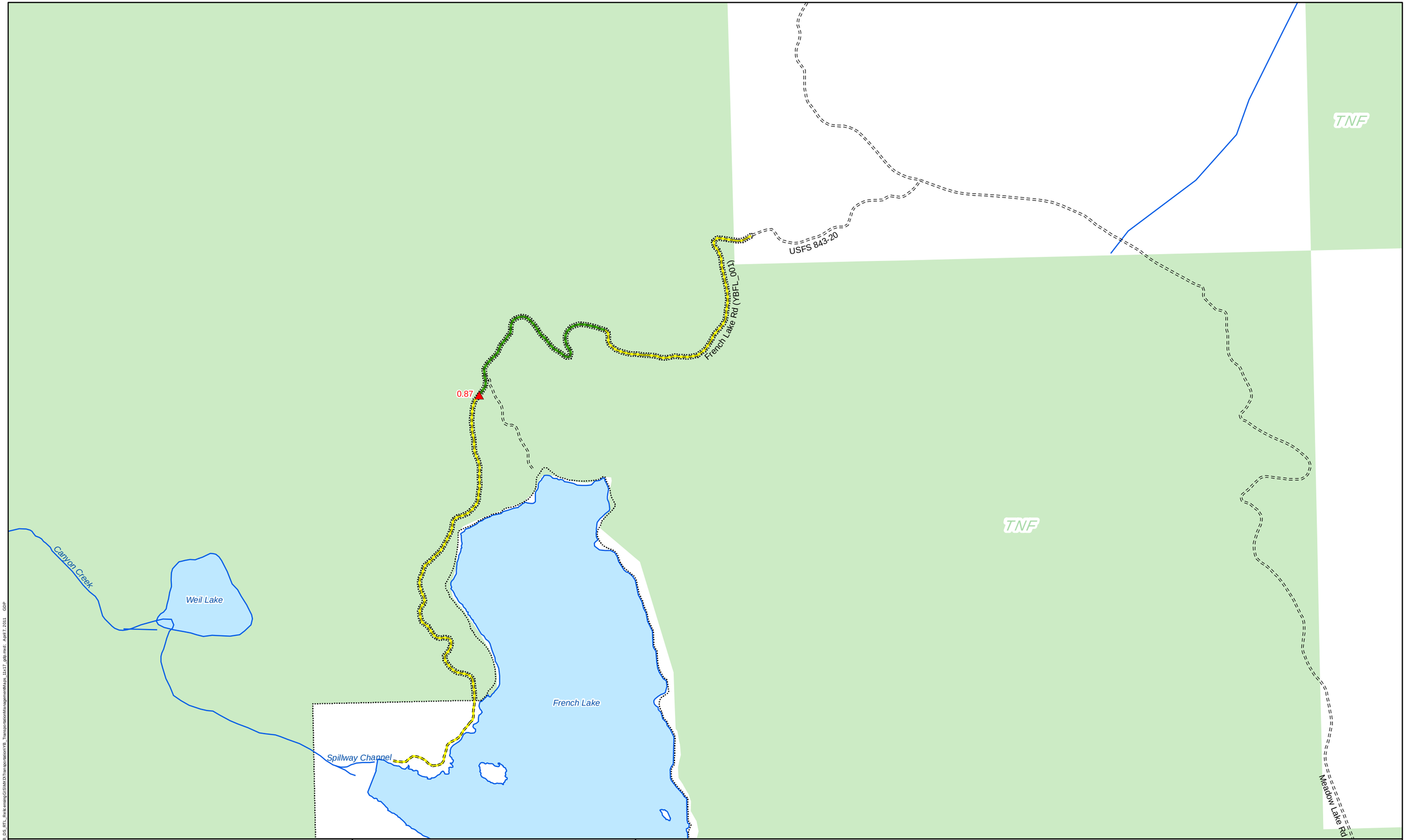
0 400 800 1,600 Feet

1:9,600

N

- Cross-Drain - Needs Treatment
- Culvert - Needs Treatment
- Low-Water Crossing - Needs Treament
- Unstable Ground - Needs Treatment
- Bridge
- Critical Dip
- Culverts
- Gates
- Low-Water Crossing
- Rolling Dip
- Safety
- Water Bar
- Primary Project Road - Needs Treatment
- Primary Project Road - No Treatment
- Decommission
- Non-Primary Project Road
- Yuba-Bear Hydroelectric Project (FERC No. 2266)
- BLM
- BOR
- TNF

G:\Projects\Nevada Irrigation District__PAD_YB_DS_RTL_Rehabilitation\GIS\MXD\Transportation\YB_TransportationMgmtMaps_11x17_gdp.mxd April 7, 2011 GDP



Attachment B
Road Rehabilitation Figures

Data Sources: Map information was compiled from the best available sources. No Warranty is made for its accuracy or completeness. Roads - USFS; Data is UTM meters, NAD83, Zone 10 North

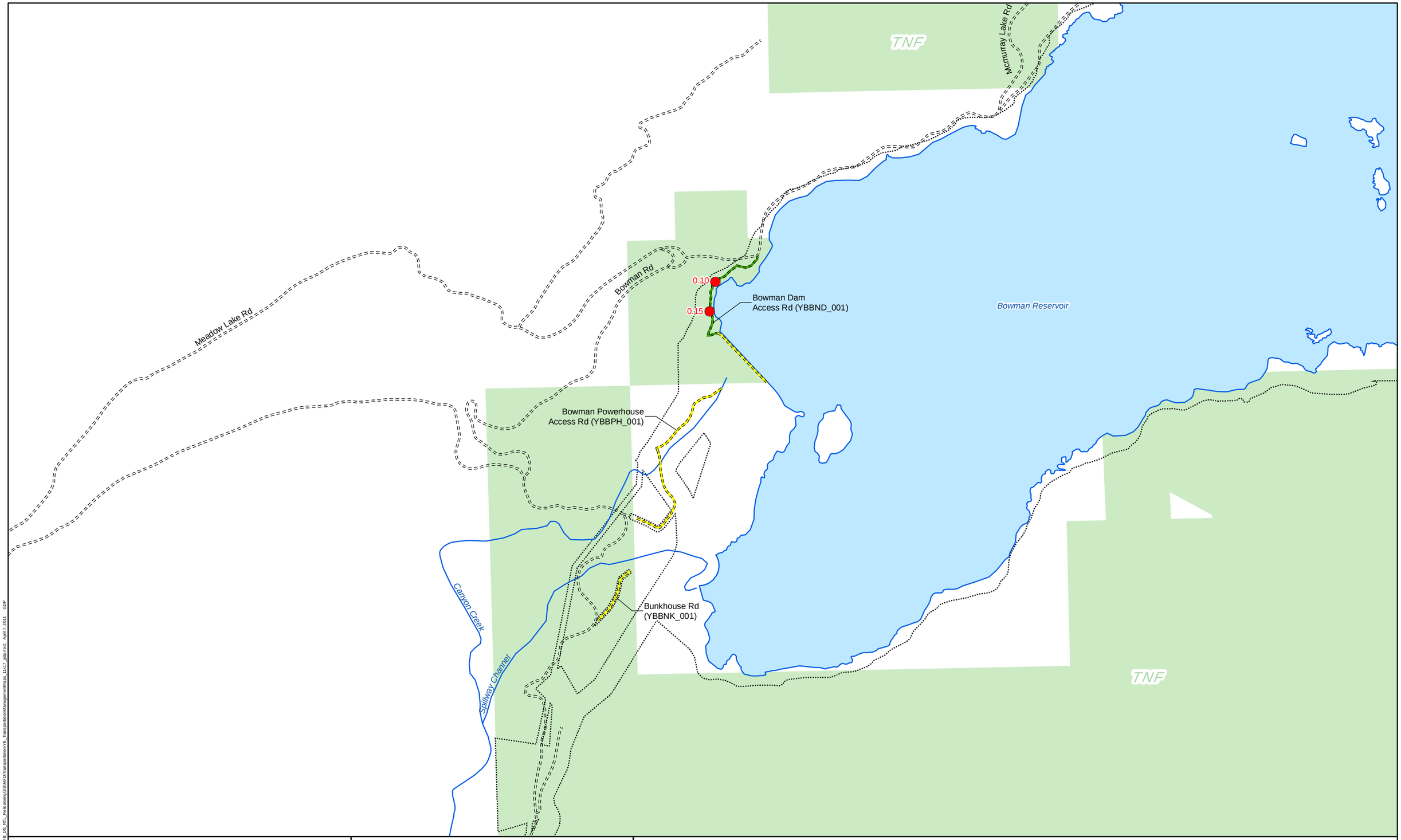
Map prepared by: HDR|DTA

0 400 800 1,600 Feet

1:9,600

N

- Cross-Drain - Needs Treatment
- Culvert - Needs Treatment
- Low-Water Crossing - Needs Treament
- Unstable Ground - Needs Treatment
- Bridge
- Critical Dip
- Culverts
- Gates
- Low-Water Crossing
- Rolling Dip
- Safety
- Water Bar
- Primary Project Road - Needs Treatment
- Primary Project Road - No Treatment
- Decommission
- Non-Primary Project Road
- Yuba-Bear Hydroelectric Project (FERC No. 2266)
- BLM
- BOR
- TNF



Attachment B
Road Rehabilitation Figures

Data Sources: Map information was compiled from the best available sources. No Warranty is made for its accuracy or completeness. Roads - USFS; Data is UTM meters, NAD83, Zone 10 North

Map prepared by: HDR|DTA

0 400 800 1,600 Feet

1:9,600

N

- Cross-Drain - Needs Treatment
- Culvert - Needs Treatment
- Low-Water Crossing - Needs Treament
- Unstable Ground - Needs Treatment
- Bridge
- Critical Dip
- Culverts
- Gates
- Low-Water Crossing
- Rolling Dip
- Safety
- Water Bar
- Primary Project Road - Needs Treatment
- Primary Project Road - No Treatment
- Decommission
- Non-Primary Project Road
- Yuba-Bear Hydroelectric Project (FERC No. 2266)
- BLM
- BOR
- TNF

Attachment B
Road Rehabilitation Figures

Data Sources: Map information was compiled from the best available sources. No Warranty is made for its accuracy or completeness. Roads - USFS; Data is UTM meters, NAD83, Zone 10 North

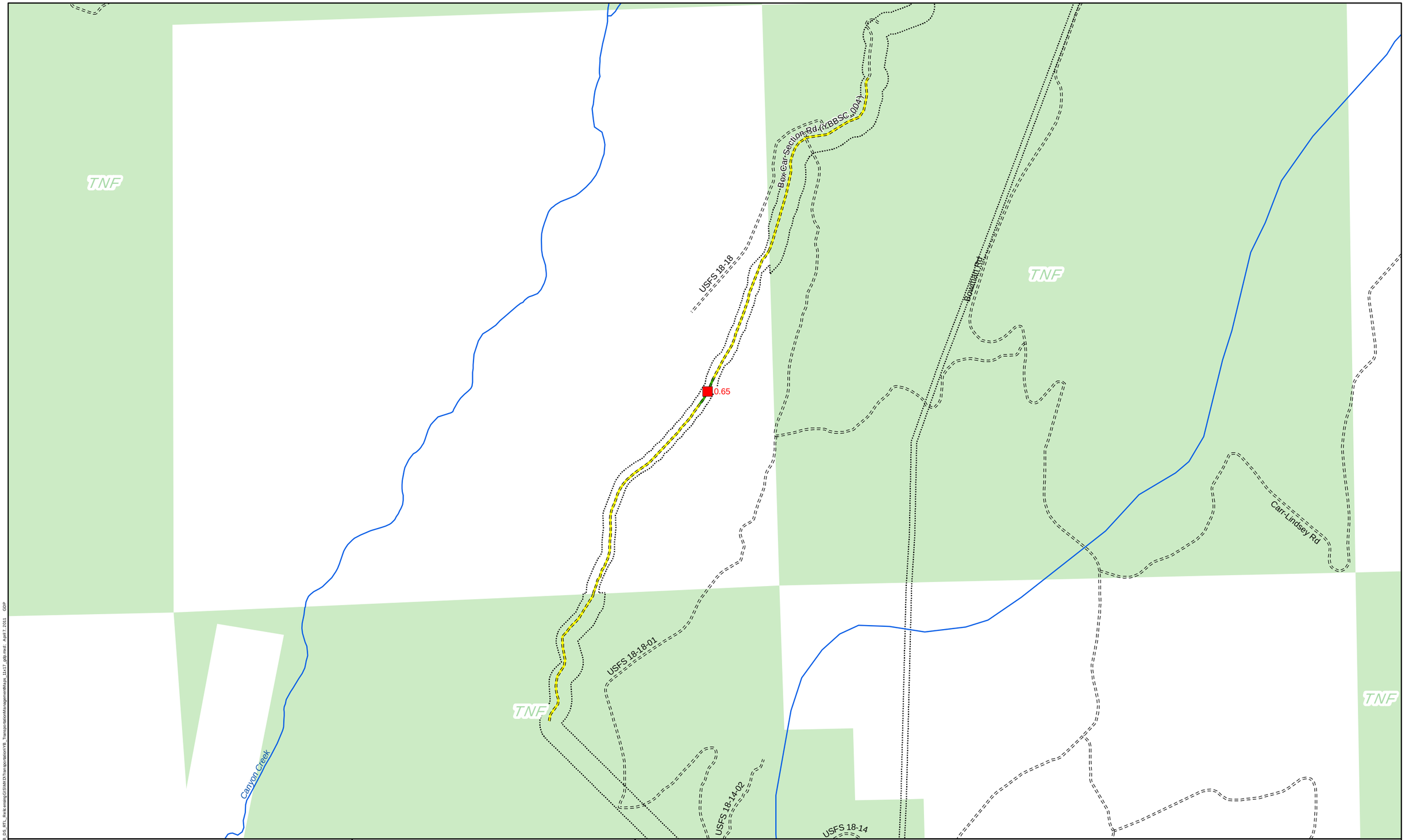
Map prepared by: HDR|DTA

0 400 800 1,600 Feet

1:9,600

N

- Cross-Drain - Needs Treatment
- Culvert - Needs Treatment
- Low-Water Crossing - Needs Treament
- Unstable Ground - Needs Treatment
- Bridge
- Critical Dip
- Culverts
- Gates
- Low-Water Crossing
- Rolling Dip
- Safety
- Water Bar
- Primary Project Road - Needs Treatment
- Primary Project Road - No Treatment
- Decommission
- Non-Primary Project Road
- Yuba-Bear Hydroelectric Project (FERC No. 2266)
- BLM
- BOR
- TNF



Attachment B
Road Rehabilitation Figures

Data Sources: Map information was compiled from the best available sources. No Warranty is made for its accuracy or completeness. Roads - USFS; Data is UTM meters, NAD83, Zone 10 North

Map prepared by: HDR|DTA

0 400 800 1,600 Feet

1:9,600

N

- Cross-Drain - Needs Treatment
- Culvert - Needs Treatment
- Low-Water Crossing - Needs Treament
- Unstable Ground - Needs Treatment
- Bridge
- Critical Dip
- Culverts
- Gates
- Low-Water Crossing
- Rolling Dip
- Safety
- Water Bar
- Primary Project Road - Needs Treatment
- Primary Project Road - No Treatment
- Decommission
- Non-Primary Project Road
- Yuba-Bear Hydroelectric Project (FERC No. 2266)
- BLM
- BOR
- TNF

Attachment B
Road Rehabilitation Figures

Data Sources: Map information was compiled from the best available sources. No Warranty is made for its accuracy or completeness. Roads - USFS; Data is UTM meters, NAD83, Zone 10 North

Map prepared by: HDR|DTA

0 400 800 1,600 Feet

1:9,600

N

- Cross-Drain - Needs Treatment
- Culvert - Needs Treatment
- Low-Water Crossing - Needs Treament
- Unstable Ground - Needs Treatment
- Bridge
- Critical Dip
- Culverts
- Gates
- Low-Water Crossing
- Rolling Dip
- Safety
- Water Bar
- Primary Project Road - Needs Treatment
- Primary Project Road - No Treatment
- Decommission
- Non-Primary Project Road
- Yuba-Bear Hydroelectric Project (FERC No. 2266)
- BLM
- BOR
- TNF

Trap Creek
USFS 18-12-1
Steel Bridge Rd
Bowman-Spaulding Berm Rd (YBBSC_006)
USFS 18-12
TNF
Rucker Lake Rd
TNF
Rucker Lake
0018-003
Golden Sheen Way
Fuller Lake
Rucker Creek
South Yuba River
TNF
Bowman Rd
Fuller Lake
Canal Access Rd (YBZION_001)
12E40
Jordan Creek
USFS 18-04

Attachment B
Road Rehabilitation Figures

Data Sources: Map information was compiled from the best available sources. No Warranty is made for its accuracy or completeness. Roads - USFS; Data is UTM meters, NAD83, Zone 10 North

Map prepared by: HDR|DTA

0 400 800 1,600 Feet

1:9,600

N

- Cross-Drain - Needs Treatment
- Culvert - Needs Treatment
- Low-Water Crossing - Needs Treament
- Unstable Ground - Needs Treatment
- Bridge
- Critical Dip
- Culverts
- Gates
- Low-Water Crossing
- Rolling Dip
- Safety
- Water Bar
- Primary Project Road - Needs Treatment
- Primary Project Road - No Treatment
- Decommission
- Non-Primary Project Road
- Yuba-Bear Hydroelectric Project (FERC No. 2266)
- BLM
- BOR
- TNF

BLM

BLM

TNF

TNF

TNF

Lowell Hill Rd

Mule Spring Rd

Dutch Flat No. 2
Conduit Intake
Access Rd (YBDFI_001)

Drum Afterbay

Bear River

Drum Powerhouse Rd

0.47

0.58

0.38

0.70

0.69

0.22

0.22

1.10

Bear River

"B" Alarm Rd
(YBBAL_001)

1.48

1.34

Drum Powerhouse Rd

Culberson Rd

Canal St

Attachment B
Road Rehabilitation Figures

Data Sources: Map information was compiled from the best available sources. No Warranty is made for its accuracy or completeness. Roads - USFS; Data is UTM meters, NAD83, Zone 10 North

Map prepared by: HDR|DTA

0 400 800 1,600 Feet

1:9,600

N

- Cross-Drain - Needs Treatment
- Culvert - Needs Treatment
- Low-Water Crossing - Needs Treament
- Unstable Ground - Needs Treatment
- Bridge
- Critical Dip
- Culverts
- Gates
- Low-Water Crossing
- Rolling Dip
- Safety
- Water Bar
- Primary Project Road - Needs Treatment
- Primary Project Road - No Treatment
- Decommission
- Non-Primary Project Road
- Yuba-Bear Hydroelectric Project (FERC No. 2266)
- BLM
- BOR
- TNF

Attachment B
Road Rehabilitation Figures

Data Sources: Map information was compiled from the best available sources. No Warranty is made for its accuracy or completeness. Roads - USFS; Data is UTM meters, NAD83, Zone 10 North

Map prepared by: HDR|DTA

0 400 800 1,600 Feet

1:9,600

N

- Cross-Drain - Needs Treatment
- Culvert - Needs Treatment
- Low-Water Crossing - Needs Treament
- Unstable Ground - Needs Treatment
- Bridge
- Critical Dip
- Culverts
- Gates
- Low-Water Crossing
- Rolling Dip
- Safety
- Water Bar
- Primary Project Road - Needs Treatment
- Primary Project Road - No Treatment
- Decommission
- Non-Primary Project Road
- Yuba-Bear Hydroelectric Project (FERC No. 2266)
- BLM
- BOR
- TNF

Attachment B
Road Rehabilitation Figures

Data Sources: Map information was compiled from the best available sources. No Warranty is made for its accuracy or completeness. Roads - USFS; Data is UTM meters, NAD83, Zone 10 North

Map prepared by: HDR|DTA

0 400 800 1,600 Feet

1:9,600

N

- Cross-Drain - Needs Treatment
- Culvert - Needs Treatment
- Low-Water Crossing - Needs Treament
- Unstable Ground - Needs Treatment
- Bridge
- Critical Dip
- Culverts
- Gates
- Low-Water Crossing
- Rolling Dip
- Safety
- Water Bar
- Primary Project Road - Needs Treatment
- Primary Project Road - No Treatment
- Decommission
- Non-Primary Project Road
- Yuba-Bear Hydroelectric Project (FERC No. 2266)
- BLM
- BOR
- TNF

Storms Ln
Lower Colfax Rd
Marina Dr
Quail Ridge Ct
Lakeview Dr
Mount Olive Rd
Orchard Springs Rd
County Pl
County Ln
Connroy Pl
Connroy Pl
(YBRMS_001)
Wild Oak
Wild Oak Rd
Durango Ln
Ladera Ln
Arrowhead Ln
Meyer Rd
Maywood Pl
Redberry Rd
174
Hansen Ln
Rollins
Reservoir
You Bet Rd
0.24
Rollins Powerhouse
Access Rd (YBRPA_001)
Rollins Dam Spillway Access Rd (YBRDS_001)
Rollins Reservoir
Spillway Channel
Bear River
Old Bridge Rd
Trestle Point Ln
Glen Elder Rd
80
Cape Horn Rd
Odyssey Ln
Bear River
Bear River
Green Acres Rd
Barb Wire Rd
Rollins Lake Rd
Norton Grade Rd
Bad Rock Rd
Railroad Easement

Attachment B
Road Rehabilitation Figures

Data Sources: Map information was compiled from the best available sources. No Warranty is made for its accuracy or completeness. Roads - USFS; Data is UTM meters, NAD83, Zone 10 North

Map prepared by: HDR|DTA

0 400 800 1,600 Feet

1:9,600

N

- Cross-Drain - Needs Treatment
- Culvert - Needs Treatment
- Low-Water Crossing - Needs Treament
- Unstable Ground - Needs Treatment
- Bridge
- Critical Dip
- Culverts
- Gates
- Low-Water Crossing
- Rolling Dip
- Safety
- Water Bar
- Primary Project Road - Needs Treatment
- Primary Project Road - No Treatment
- Decommission
- Non-Primary Project Road
- Yuba-Bear Hydroelectric Project (FERC No. 2266)
- BLM
- BOR
- TNF

G:\Projects\NevadaIrrigationDistrict_PAO_YB_DS_RTL_Rehab\mxd\GIS\MXD\Transportation\YB_TransportationManagementMaps_11x17_@fb.mxd - April 7, 2011 - GDP

Application for a New License
Major Project – Existing Dam

Amended Non-Native Invasive Plant Management Plan

Yuba-Bear Hydroelectric Project
FERC Project No. 2266-096

Prepared by:
Nevada Irrigation District
1036 West Main Street
Grass Valley, CA 95945
www.nidwater.com

June 2012

Table of Contents

List of Tables

List of Figures

Figure No.	Description	Page No.
None		

List of Attachments

GLOSSARY - DEFINITION OF TERMS, ACRONYMS AND ABBREVIATIONS

For the purpose of this Plan, the following definitions apply:

BLM	United States Department of the Interior, Bureau of Land Management
CDFA	California Department of Food and Agriculture
CDFA Listings	A: An organism of known economic importance subject to state action involving: eradication, quarantine, containment, rejection, or other holding action. B: An organism of known economic importance subject to: eradication, containment, control or other holding action. C: An organism subject to no state enforced action outside of nurseries except to retard spread. Q: An organism suspected to be of environmental detriment, but whose status is uncertain.
CFR	Code of Federal Regulations
FERC	Federal Energy Regulatory Commission
Forest Service	United States Department of Agriculture, Forest Service
GIS	Geographic Information System
GPS	Global Positioning System
kV	kilovolt
NFS	National Forest System
NID or Licensee	Nevada Irrigation District
NNIP	non-native invasive plant
O&M	operation and maintenance
Plan	Non-Native Invasive Plant Management Plan
Primary Project roads	non-general use roads, used primarily for the Project and located within the FERC Project Boundary
Project	Yuba-Bear Hydroelectric Project, FERC Project No. 2266
Target Species	All species listed by the California Department of Food and Agriculture (CDFA) as A, B, C or Q noxious weeds (CDFA 2010a) and other invasive non-natives listed by the TNF (TNF 2012).
TNF	Tahoe National Forest

Page Left Blank

SECTION 1

INTRODUCTION

1.1 Background

In April 2011, Nevada Irrigation District (NID or Licensee), pursuant to Sections (§§) 5.17 and 5.18 of Title 18 of the Code of Federal Regulations (CFR), filed an application for a new license with the Federal Energy Regulatory Commission (FERC) for NID's Yuba-Bear Hydroelectric Project (Project), FERC Project No. 2266. The initial license for the Project was issued by the Federal Power Commission, FERC's predecessor, to NID on June 24, 1963, effective on May 1, 1963, for a term ending April 30, 2013.

The Project is a water supply/power project located in the Middle Yuba River, Canyon Creek, Fall Creek, Rucker Creek, and Bear River basins in Nevada, Placer, and Sierra counties, California. The Project consists of four developments – Bowman, Dutch Flat, Chicago Park and Rollins – that collectively include nine on-stream reservoirs; three off-stream impoundments; two diversion dams; four powerhouses; one overhead 60 kilovolt (kV) transmission line; and various water conduits and appurtenant facilities and structures, recreation facilities and Primary Project roads.[1]

Some of the area within the FERC Project Boundary, as shown in Exhibit G of Licensee's application for a new license, occupies federally owned National Forest System (NFS) land managed by the United States Department of Agriculture, Forest Service (Forest Service) as part of the Tahoe National Forest (TNF), and some is federally owned land administered by the United States Department of the Interior, Bureau of Land Management (BLM) in conformance with the Sierra Resource Management Plan (BLM 2008).

Table 1.1-1 summarizes land ownership within the proposed Project.

Table 1.1-1. Summary of land ownership within the proposed Yuba-Bear Hydroelectric FERC Project Boundary by Project Development.[1]

Development	Forest Service (acres)	BLM (acres)	NID (acres)	Other Private (acres)	Total (acres)	Percent
PROPOSED FERC PROJECT BOUNDARY						
Bowman	1,202.2	--	2,313.9	112.8	3,628.9	60%
Dutch Flat	205.1	13.9	53.1	89.4	383.7	6%
Chicago Park	--	77.0	48.1	70.3	195.4	3%
Rollins	--	140.2	1,690.6	7.3	1,838.1	30%
Bowman-Spaulding Transmission Line	28.2	--	1.9	28.2	58.3	1%
Total	**1,435.5**	**231.1**	**4,107.7**	**308.0**	**6,082.3**	**100%**
Percent	**24%**	**4%**	**67%**	**5%**	**100%**	**--**

[1] The Bowman-Spaulding Transmission Line, part of the Bowman Development, is shown separately because it is a linear facility.

[1] Primary Project roads are defined and listed in the Transportation Management Plan (NID 2011).

1.2 Purpose of the Non-Native Invasive Plant Management Plan

The Non-Native Invasive Plant (NNIP) Management Plan (Plan) recognizes that Licensee's activities are one of several contributing factors to current and potential NNIP occurrences within the FERC Project Boundary. Other significant factors likely include public travel, adjacent land management activities, recreation and cattle grazing.

The purpose of this Plan is to provide guidance for the management of NNIP on NFS land and public land administered by the BLM within the FERC Project Boundary.

For the purposes of the Plan, NNIP are defined as all species listed by the California Department of Food and Agriculture (CDFA) as A, B, C or Q noxious weeds (CDFA 2010a) and other invasive non-natives listed by the TNF (TNF 2012). The current CDFA list can be found online within the CDFA's website, and the current TNF NNIP list can be requested from the TNF. Both the CDFA and TNF update these lists periodically, and those updated lists will be utilized during the term of the license.

Any measures undertaken with respect to NNIP management will be coordinated by Licensee with other resource efforts and will, in particular, take into account the need to protect sensitive resources. Licensee will use multiple measures to protect sensitive resources during NNIP management to ensure that adverse effects are avoided or minimized. For the purpose of the Plan, a sensitive resource area contains: known cultural resources, known special-status species, sensitive habitat, such as riparian zones and wetlands, and other pre-determined areas with significant sensitive resources. Refer to Section 4 of the Vegetation Management Plan (Sensitive Area Protections) for more information about how impacts to sensitive resources will be avoided and minimized.

All NNIP management measures on federal lands will be coordinated by the Licensee and approved by the NFS and/or BLM at the annual meeting.

1.3 Goals and Objectives of the Non-Native Invasive Plant Management Plan

The goal of this Plan is to establish overall management and monitoring actions to prevent the introduction of NNIP into new areas, and to control and/or eradicate known NNIP occurrences on federal lands within the FERC Project Boundary. The Plan includes measures to survey and monitor the distribution of NNIP, control and contain the spread and track the success of NNIP management activities. The Plan involves four components: prevention, monitoring/surveys, NNIP treatment, and reporting.

1.4 Contents of the Non-Native Invasive Plant Management Plan

This Plan includes the following:

- Section 1. Introduction. This section includes introductory information, including the purpose and goal of the Plan.
- Section 2. Prevention. This section includes information on preventing the further spread of NNIP and aquatic invasives, including annual employee training and aquatic invasive prevention guidelines.
- Section 3. NNIP Monitoring and Surveys. This section includes a description of methods for monitoring known and surveying for new NNIP.
- Section 4. NNIP Treatment. This section includes information on the methods for containing and actively managing known occurrences of NNIP.
- Section 5. Consultation, Reporting and Plan Review. This sections details consultation and other reporting on NNIP between Licensee and TNF and BLM.
- Section 6. References Cited. This section provides a list of the references cited in the Plan.
- Attachment A. NNIP Occurrences: Figures 1 to 9
- Attachment B. NNIP Survey Area: Figures 1 to 10

Page Left Blank

SECTION 2

PREVENTION

2.1 Annual Employee Training

Beginning the first full calendar year after license issuance, Licensee will provide for annual environmental training for operation and maintenance (O&M) staff (employees and contractors) potentially working in the FERC Project Boundary on NFS land or public land administered by BLM. The training will include an NNIP component that emphasizes Licensee's policies on NNIP, as well as the prevention guidelines listed below. In particular, employees will receive training on the location of known occurrences and identification of barbed goatgrass (*Aegilops triuncialis*), skeletonweed (*Chondrilla juncea*), spotted knapweed (*Centaurea maculosa*), Scotch thistle (*Onopordum acanthium*) and other NNIP known to occur in the FERC Project Boundary.[2] The NNIP component of annual environmental training will include, at minimum:

- Licensee's NNIP policy and NNIP prevention guidelines as identified in this Plan with emphasis on prevention of spread of existing occurrences, including guidelines that address vehicle use off roads and within known infestations
- Environmental and economic impacts of NNIP
- Recognition of target NNIP to help prevent spread
- Location of existing NNIP occurrences
- NNIP reporting procedures

2.2 NNIP Prevention Guidelines

Prevention guidelines were developed to minimize and/or prevent the spread of NNIP from known occurrences and to prevent their introduction into new areas through Project-related operations and activities. The following prevention guidelines will be used by all NID personnel and contractors working within the FERC Project Boundary on NFS land and public land administered by BLM. However, exceptions may occur in unusual or time-sensitive circumstances (e.g., emergency maintenance).

- Licensee or its contractors will ensure, through washing and inspection (by Forest Service or BLM personnel or Licensee employees), that all off-road equipment brought into the area from outside the FERC Project Boundary or from areas known to contain populations of NNIP is free of visible soil, seeds, vegetative material, or other debris that could contain or hold seeds of NNIP. Measures to prevent the introduction of NNIP are inclusive of all plant material (e.g., equipment washing removes propagules of all plant species, not just target NNIP). All construction equipment, earth moving equipment, and vegetation management equipment, excepting chainsaws, will be thoroughly cleaned before entering the FERC

[2] As per measure YB-GEN2, it is not the intent of this training that Licensee's O&M staff performs surveys or become specialists in the identification of invasive weeds.

Project Boundary, to reasonably ensure that seeds of NNIP are not introduced. Vehicles that are solely used for Licensee's regular O&M activities that do not operate off system roads/trails will not require cleaning.

- When ground disturbance is required within the FERC Project Boundary on NFS land or public land administered by BLM, Licensee will dispose of any resulting spoils on-site, grade to match local contours and mulch and/or reseed the disturbed areas, following the guidelines described in the Vegetation Management Plan in Section 2 (Revegetation). Licensee will consult with the TNF and/or BLM botanist, as appropriate, at the annual meeting to determine a mix that complies with current guidelines. The seed mixture should be a commercially available product. If fill is required for O&M activities, Licensee will use fill collected on-site whenever possible, and mulch and/or reseed the disturbed area as described in the Vegetation Management Plan.
- Licensee will use certified weed-free straw/mulch for all construction, erosion control, or restoration needs, when certified products are available, and will use gravel and sand from weed-free sources where possible.
- Licensee will promptly seed topsoil stockpiles that will remain in place for longer than one month to maintain soil microbe health and to help prevent NNIP (see Vegetation Management Plan).
- Licensee will restrict travel to established roads and motorized trails, when possible, and avoid entering areas with existing populations of NNIP. If entering such areas is required, Licensee will conduct work in NNIP-free areas first and wash equipment after leaving the infested areas.
- Licensee will not use non-native, plant materials unless agreed to by the Forest Service or BLM. In general, site-specific restoration activities will be developed before ground disturbing actions. Restoration and seeding of disturbed areas, including topsoil piles and berms, will be completed within 30-60 days following completion of construction or ground-disturbing activities, or as soon as possible, unless otherwise agreed to. In some situations, seeding in the fall may be preferred due to timing of rainfall.

2.3 Aquatic Invasive Species Prevention Guidelines

The following aquatic invasive species Best Management Practices (BMP) for prevention guidelines will be implemented within the FERC Project Boundary at Project reservoirs:

- Licensee will implement a public education program, including signage and information pamphlets at public boat access sites, covering the following prevention actions:
  - Draining water from boat, motor, bilge, live well and bait containers before leaving a water access site.
  - Removing visible plants, animals and mud from boat before leaving waterbody.
  - Cleaning and drying boats using California Department of Fish and Game (CDFG) accepted protocols for the prevention of all invasive aquatic species before entering any waterbody area

  - Disposing of unwanted bait in trash, including earthworms.
  - Avoiding the release of plants and animals into a waterbody unless they already came from that waterbody.

- If any reservoir access sites become infested with invasive aquatic species, Licensee will consult with appropriate agencies, institute appropriate signage, implement access restrictions and/or inspection and cleaning stations.
- In accordance with Assembly Bill 2065, Project reservoirs will be assessed for their vulnerability to the introduction of non-native dreissenid mussel species (i.e., quagga and zebra mussels) and if necessary, further actions to prevent their introduction will be designed and implemented.

Page Left Blank

SECTION 3

NNIP MONITORING AND SURVEYS

Beginning in the first year following license issuance and every fifth year thereafter in high use areas and every tenth year thereafter in low use areas (Attachment B), Licensee will conduct a complete NNIP survey of NFS land and public land administered by BLM within the FERC Project Boundary. Surveys will be conducted at an appropriate intensity to ascertain the nature and distribution of all NNIP occurrences on NFS land and public land administered by BLM within the Project Boundary. Surveyors will record NNIP composition, location, and relative abundance, and provide that information along with Geographic Information System (GIS) data, documenting the boundaries of occurrences of target NNIP and new NNIP, if present. If new, small occurrences of target NNIP or new NNIP species are located (generally, an hour or less of work within a day) of NNIP are located, they will be treated by hand pulling at the time of surveys.

Beginning the first year following treatment, target NNIP on NFS lands and public lands administered by the BLM will be monitored annually. Over time, if monitoring shows a decline in the number of target NNIP in an occurrence, the frequency of monitoring may be reduced. Monitoring will end once an occurrence is considered eradicated, including evidence that the NNIP seed stored in the soil is depleted. Monitoring will follow the following guidelines:

- Monitoring data will include a Global Positioning System (GPS)-determined occurrence boundary for small or well-delineated occurrences, or qualitative descriptions of occurrence boundaries for widespread or diffuse occurrences.
- Data collected will include a visual assessment of the number of plants, treatment method(s), acreage treated, percent cover of target NNIP within the treated area, and photographs of the treated area.

Comparisons between annual survey maps and data will be used to assess change in target NNIP distribution and cover over time. This information will enable Licensee to better determine the success of control treatments and aid in deciding if alternative methods are necessary.

Page Left Blank

SECTION 4

NNIP TREATMENT

4.1 Guidelines

Under the Plan, NNIP occurring on NFS land and public land administered by BLM within the FERC Project Boundary will be managed according to the degree and kind of threat they pose. Licensee shall, in cooperation with the Forest Service and BLM, develop a schedule for control (containment or eradication) of all known populations of target NNIP. Target NNIP include CDFA A-, B-, and Q-listed species, as well as new occurrences[3] of specific CDFA C-listed weeds[4]. Target NNIP will be designated for active management efforts aimed at eradication of small occurrences and control of larger ones. Non-target NNIP (for example, Klamath weed) will be addressed through Project-wide prevention/education efforts and/or less intensive management aimed at containment. In general, emphasis will be placed on the feasibility of successful control of a given species, and the threat posed to other resources, such as special-status species. All management will be consistent with state and federal law, which will take precedence in the event any conflicts occur. Control and containment of all NNIP will be reviewed at the Annual Consultation Meeting.

NNIP occurring on private lands are not addressed under this Plan.

Site-specific circumstances may dictate deviations from these guidelines. In particular, on lands with other resource concerns (e.g., special-status plant occurrences), NNIP management will emphasize the protection of those resources. All management will be consistent with federal and state law, which will take precedence in the event any conflicts with the Plan occur.

4.2 Control

Target NNIP and newly located specific NNIP on NFS land and public land administered by BLM within the FERC Project Boundary will be managed using an integrated and comprehensive approach, including the prevention/education strategies previously discussed and a mixture of manual, mechanical, and, where appropriate, chemical control methods. Decisions on which control method(s) to use will be discussed at the Annual Consultation Meeting and approved by the Forest Service and/or BLM. Control methods shall be based on the target/new NNIP's location, size, proximity to sensitive resources and known effectiveness of control methods and other applicable factors. Licensee shall be responsible for any analysis necessary to ensure compliance with the Tahoe National Forest Land and Resource Management Plan (TNF 1990), BLM Sierra Resource Management Plan (BLM 2008), and any amendments or additional Forest Service or BLM requirements to address the use of herbicides within the FERC Project

[3] Occurrences of C-listed invasive weeds will be considered 'new' beginning the year after completion of the first invasive weed survey under the new license.

[4] 'New' occurrences of the following C-listed invasive weed species will be treated under the Plan: tocalote (*Centaurea melitensis*), yellow starthistle (*Centaurea solstitialis*), Scotch broom (*Cytisus scoparius*) and French broom (*Genista monspessulana*).

Boundary. All new NNIP occurrences will be eradicated/controlled within 12 months of detection, or as soon as practical or feasible, with the emphasis on rapid treatment after detection, before seed set, if possible. If occurrences are already in or past seed set for the year, treatment must include specific disposal requirements.

Manual control is most effective on small and/or new occurrences or occurrences located in sensitive areas. Manual methods include hand pulling, cutting, solarizing, digging and targeted grazing, all of which tend to be labor-intensive. As with all NNIP treatment methods, additional treatments are required annually until the seed stored in the soil is exhausted.

Mechanical control can be effective on small or large occurrences, and some methods can be used in sensitive areas. Mechanical control methods include cutting, mowing, disking and steaming. These techniques have to be conducted annually for multiple years to fully treat a weed occurrence. Some mechanical methods also cause soil disturbance and can stimulate the germination of NNIP seed stored in the soil.

Chemical control is an effective way of dealing with NNIP and can be used to target both large and small occurrences, but is not always an effective method of treatment in sensitive areas. Effectiveness depends on factors, like the application rate and target species. Licensee will develop a NNIP treatment plan for the Project within a year of the first NNIP surveys after relicensing to incorporate the use of pesticides for NNIP treatment. Written permission is required from the Forest Service and BLM before pesticides can be applied to federally owned lands.

For a targeted NNIP occurrence, any of these methods, or combination of methods, may be used. Areas where treatment has been completed will be restored/revegetated to help prevent the reintroduction of NNIP species, per the guidelines in the Vegetation Management Plan.

4.3 Existing Weed Populations

Licensee's relicensing studies in 2008 and 2011 found 260 occurrences of NNIP within the Project Boundary. Of these occurrences, 48 were located on NFS land and 45 on public land administered by BLM: one occurrence of barbed goatgrass (*Aegilops triuncialis*) and 4 of Scotch broom (*Cytisus scoparius*) on BLM land, 2 occurrences of tocalote (*Centaurea melitensis*) on NFS land; 2 occurrences on NFS land and 6 on BLM land of yellow starthistle (*Centaurea solstitialis*); 3 occurrences on NFS land and 8 on BLM land of skeletonweed (*Chondrilla juncea*); 41 occurrences on NFS land and 25 on BLM land of Klamathweed (*Hypericum perforatum*); and 1 occurrence of Spanish broom (*Spartium junceum*) on public land administered by the BLM (NID and PG&E 2011). No CDFA Q-listed weeds were found on federal lands within the FERC Project Boundary.

Skeletonweed, barbed goatgrass, tocalote and yellow star thistle (on TNF lands only) will be addressed with intensive control, as discussed in Section 4.2. Scotch broom and French broom occurrences will be addressed under a containment strategy with the goal of keeping the size of the infestations at levels from the survey the year after license issuance or less. The containment

strategy includes implementation of the prevention/education guidelines (detailed in Section 2.2) and localized treatment of occurrences near sensitive resources, such as special-status plant locations. The figures in Attachment A show NNIP locations within the Project Boundary.

4.3.1 Skeletonweed

Skeletonweed is an herbaceous perennial or biennial, which is known to take several different morphological forms, differing in leaf width, branching pattern, and flowering time. These characteristics generally do not differ within populations since all reproduction is clonal (vegetative and seed apomixis). Flower stems persist after senescence. This species prefers habitat in disturbed areas, such as roadsides, croplands, pastures, and residential areas. The species will tolerate a wide variety of conditions, but grows best on well-drained, sandy, or gravelly soils in areas with cool winters and hot, dry summers without periods of prolonged drought. Seeds are primarily wind-dispersed, but may also be vectored by water, animals, and human activity. A combination of methods is necessary to effectively control skeletonweed. Hand-pulling can remove small occurrences, but all parts of the plant must be removed, bagged and thrown away to prevent resprouting. Mechanical tillage can effectively eliminate seedlings and older plants in the short-term. However, the plants will continue to persist due to vegetative reproduction. Glyphosate is effective at controlling small rosettes, while a mixture of Transline and MCPA or 2,4-D has been proven effective on young and old plants. Three forms of biological control, the skeletonweed gall mite (*Eriophyes chondrillae*), skeletonweed gall midge (*Cystiphora schmidtii*) and skeletonweed rust (*Puccinia chondrillina*) have been shown to be successful in skeletonweed control and are all approved for use in California and have shown success in dealing with skeletonweed occurrences (CDFA 2010b).

Eleven occurrences of skeletonweed were located on public lands within the FERC Project Boundary: 3 occurrences on NFS land and 8 on public land administered by BLM. The occurrences on NFS land were located on the Dutch Flat No. 2 Conduit, while the occurrences on BLM land were located on the Chicago Park Forebay Road, Chicago Park Conduit and the Dutch Flat No. 2 Conduit (NID and PGE 2011). A combination of effective treatment methods will be used to treat these occurrences on NFS land and public land administered by BLM within the FERC Project Boundary.

4.3.2 Barbed Goatgrass

Barbed goatgrass is an herbaceous annual, which primarily infests rangelands and pastures, including grasslands and oak woodlands, but usually not chaparral. This species can tolerate serpentine and hard, shallow, dry, gravelly soils. Some seeds can remain dormant for 2 or more years. Prevention is the key in dealing with the species, because once it becomes established, controlling it is very difficult. Barbed goatgrass spread occurs only by seed dispersal, and seeds may be transported on hair, fur, wool, shoes or clothes. Mowing can be an effective method of reducing seed production. Mowing should occur after flowering, but before goatgrass seeds reach the soft boot stage (i.e., when there is a lump in the stalk, but the seed head has not emerged). Early mowing will result in new tiller growth, and late mowing will only spread viable seed. Hand pulling or hoeing small infestations is effective, if the roots are pulled and air-

dried. Nonselective herbicides may be applied to control small infestations, following consultation with the appropriate agency. Applications would be made to non-stressed plants in the spring before flowering occurs. There are currently no biological controls for barbed goatgrass (CDFA 2010b).

One occurrence of barbed goatgrass was located on BLM lands within the FERC Project Boundary on the Chicago Park Forebay Road (NID and PG&E 2011).[5] A combination of effective control methods for barbed goatgrass will be used to treat the occurrence.

4.3.3 Tocalote

Tocalote is primarily found in disturbed sites, but is also known to move into undisturbed annual grasslands. When this species forms dense stands, it displaces native vegetation and animals in addition to increasing soil erosion and reducing water percolation. Tocalote can be spread though human activities including seed and soil contamination and transport of equipment and vehicles. Although wind is not a major dispersal vector, seeds can be transported longer distances in animal hair or by birds after ingestion (Cal-IPC 2003).

Management techniques for tocalote include mowing, herbicide application and on very small occurrences, hand-pulling. All methods must be properly timed to be effective. Mowing is most effective when plants are cut below the height of the lowest branches and no more than 2-5 percent of the total occurrence is in bloom. All starthistles are highly susceptible to the herbicide Clopyralid. Prescribed burns and intensive, short duration grazing at the right times of year can also substantially reduce starthistle occurrences (CDFA 2010b). Multiple years of treatment are necessary to eliminate the seeds in the seedbank.

Two occurrences of tocalote were found on NFS land. One occurrence of tocalote was found along the Bowman Road near Bowman Lake and the other on the B Alarm Road. A combination of methods will be used to treat these occurrences on NFS land and public land administered by BLM within the FERC Project Boundary.

4.3.4 Yellow Starthistle

Yellow starthistle is an annual, sometimes biennial, species that is highly competitive and will typically develop into very dense stands, displacing native vegetation in otherwise natural areas. The species was originally introduced from southern Europe into California around 1850. It has since infested extremely large areas within the state. This species is a prolific seed producer, producing seeds at levels of 10,000 per square meter, which remain viable in soil for three or more years. Seeds can be transported by human vectors, including the movement of contaminated hay and infested equipment or vehicle transport. Some seeds are dispersed by wind, and birds and mammals after ingestion (CDFA 2010b). Management techniques are similar to those for tocalote.

[5] Surveyors removed all visible barbed goatgrass plants at the site by hand and properly disposed of the remains during the 2011 survey.

Two occurrences of yellow starthistle were found on NFS land and 6 on BLM land within the FERC Project Boundary. The two occurrences of yellow starthistle on NFS land were located on the Dutch Flat Conduit. On BLM lands, there were two occurrences of yellow starthistle on the Chicago Forebay Road, and one occurrence each on the Dutch Flat Conduit, Little York Basin, Dutch Flat Forebay penstock and Chicago Park Conduit. A combination of methods will be used to treat these occurrences only on NFS land.

4.3.5 Scotch Broom

Scotch broom is a perennial shrub that was originally introduced as a landscape ornamental, but which is a highly aggressive invader of many natural areas. A mature shrub can produce 2,000-3,500 seed pods in a year, and seeds can survive 30 or more years in the ground. The two main control methods for Scotch broom are mechanical and chemical. Weed wrenches are an effective technique for the complete removal of Scotch broom occurrences. Glyphosate and Triclopyr are both effective chemical treatments for Scotch broom. Both mechanical and chemical treatments both require multiple years to completely eradicate Scotch broom occurrences (CDFA 2010b).

There were four occurrences of Scotch broom on BLM lands within the FERC Project Boundary. On BLM lands, three occurrences were on the Chicago Forebay Access Road and one was on the Chicago Park Conduit. A combination of methods will be used to treat these occurrences on NFS land and public land administered by BLM within the FERC Project Boundary.

4.4 Weed Treatment Plan

Licensee shall, in consultation with federal agencies, develop a NNIP treatment plan in the year following the first complete weed survey conducted after license issuance (NNIP surveys will be initiated the first year following license issuance).

If new, target NNIP are discovered in the future on NFS land and/or public land administered by BLM within the FERC Project Boundary, the information will be shared with the Forest Service and/or BLM at the Annual Consultation Meeting or in the report of NNIP surveys conducted in the previous year on federal lands.

Early detection with rapid treatment is considered the most effective way to prevent the spread of NNIP into new areas. Implementation of an annual NNIP training program supports early detection efforts by supporting on-the-ground identification.

Page Left Blank

SECTION 5

CONSULTATION, REPORTING AND PLAN REVIEW

Over the term of the new license, additional consultation may occur, as necessary, to ensure that the goals and objectives of the Plan are being met and the proposed measures implemented. Consultation activities that will be conducted during the new license terms will include an Annual Consultation Meeting and periodic reporting of NNIP management as described below.

5.1 Annual Consultation Meeting

Each year during the term of the license, NID shall arrange to meet with the Forest Service and BLM for an annual meeting to discuss the measures needed to ensure prevention of new NNIP introduction, and minimization of the spread of existing NNIP infestations on NFS land and public land administered by BLM within the FERC Project Boundary. New information regarding locations will also be shared. Education and prevention measures will be reviewed and adjusted as needed to ensure that employees have received the NNIP training needed and prevention measures are identified. The previous year's NNIP treatment report will also be discussed. The Licensee will identify those projects planned for the upcoming year (on NFS and/or BLM lands) and the appropriate NNIP prevention measures for those projects will be discussed and approved by FS or BLM. When revegetation is identified as a needed component for integrated NNIP treatment, as defined under the Vegetation Management Plan, the appropriate seed mix, mulch, and/or fill site will be approved by FS or BLM. The date of the meeting will be mutually agreed to by NID, Forest Service and BLM, but in general, will be held within the first 90 days of each calendar year.

At the Annual Consultation Meeting, NID shall review with the Forest Service and BLM its NNIP management activities planned for the calendar year on NFS land and public land administered by BLM, identify any revisions needed, and make any adjustments to the Plan or schedule, as deemed appropriate.

5.2 Reporting

By December 31 of each year, Licensee will provide to the Forest Service and BLM a report of NNIP surveys conducted in the previous year on NFS land and public land administered by BLM, if a survey has been performed. The memorandum will include GPS spatial and attribute data collected in the field and entered into a GIS geodatabase. During years without comprehensive surveys, information about other newly discovered NNIP will also be shared, if applicable.

By September 30 of each year where occurrences are being treated, a report on NNIP treatments will be provided to the Forest Service and BLM, as appropriate. The report will include:

- Name and approximate number of NNIP treated
- Treatment method
- Acres treated
- Map of area treated
- Proposed future treatments
- Any other applicable information

Other management activities and updates will be reported during the Annual Consultation Meeting described above.

5.3 Plan Revisions

NID, in consultation with the Forest Service and BLM, will review, update, and/or revise the Plan to include pesticide use after relicensing and thereafter as needed when significant changes in the existing condition occur. Changes or revisions to the Plan would be expected if NNIP conditions change as a result of unforeseen effects, either from new or existing Project-related activities or from natural events. Changes may also be implemented if monitoring feedback indicates that resource objectives are not being met.

Any updates to the Plan would be prepared in coordination and consultation with Forest Service and BLM. A minimum of 60 days would be allowed for the Forest Service and BLM to comment and make recommendations before NID files the updated plan with FERC. NID would include all relevant documentation of coordination/consultation with the updated Plan filed with FERC. If NID does not adopt a particular recommendation, the filing would include the reasons for not doing so, based on Project-specific information.

SECTION 6

REFERENCES CITED

California Department of Food and Agriculture (CDFA). 2010a. Pest Ratings of Noxious Weed Species and Noxious Weed Seed. California Department of Food and Agriculture. January.

_____. 2010b. Encycloweedia. Available online: <http://www.cdfa.ca.gov/plant/ipc/weedinfo/winfo_table-commname.htm >. California Department of Food and Agriculture.

California Invasive Plant Council (Cal-IPC). 2003. Criteria for Categorizing Invasive Non-Native Plants that Threaten Wildlands: Tocalote. Available online: <http://www.cal-ipc.org/ip/inventory/PAF/Centaurea% 20melitensis.pdf>. Accessed May 4, 2010. Last updated May 22, 2003. Cal-IPC. Sacramento, CA.

Nevada Irrigation District (NID). 2011. Transportation Management Plan. Yuba Bear Hydroelectric Project, FERC Project No. 2266. November.

Nevada Irrigation District (NID) and Pacific Gas and Electric Company (PG&E). 2011. Technical Memorandum 5-1: Special-status Plants. Yuba Bear Hydroelectric Project, FERC Project No. 2266; Drum-Spaulding Project, FERC Project No. 2310; and Rollins Transmission Line Project, FERC Project No. 2784. March.

United States Department of Agriculture, Forest Service. Tahoe National Forest (TNF). 1990. Tahoe National Forest Land and Resource Management Plan. Department of Agriculture. Nevada City, California. 687 pp. and appendices.

_____. 2012. Tahoe National Forest Weed List and Current Management Direction. United States Department of Agriculture, Forest Service. January.

United States Department of the Interior, Bureau of Land Management (BLM). 2008. Sierra Resource Management Plan and Final Environmental Impact Statement. Folsom Field Office. Folsom, California.

Page Left Blank

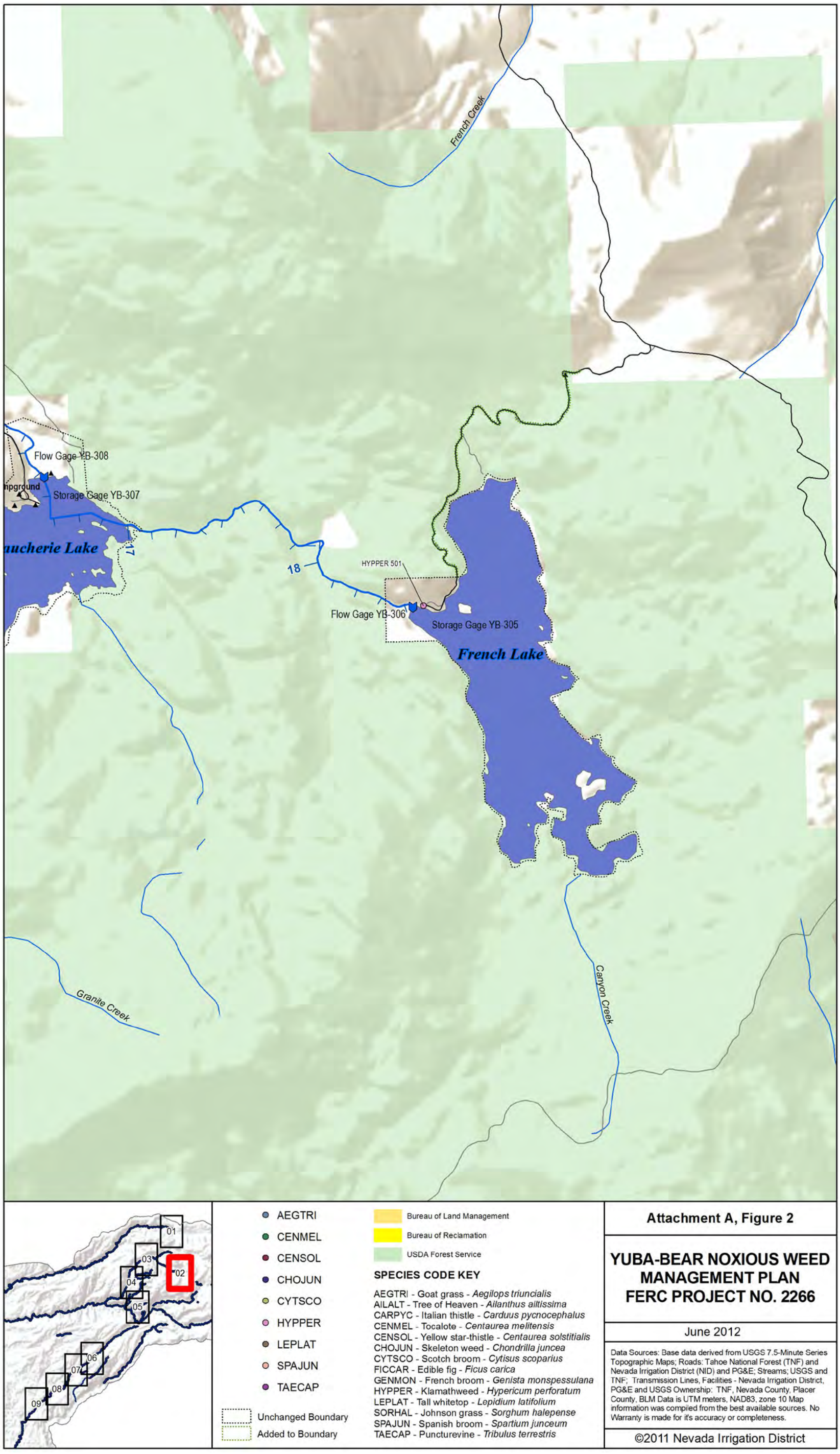
Yuba-Bear Hydroelectric Project
FERC Project No. 2266-096

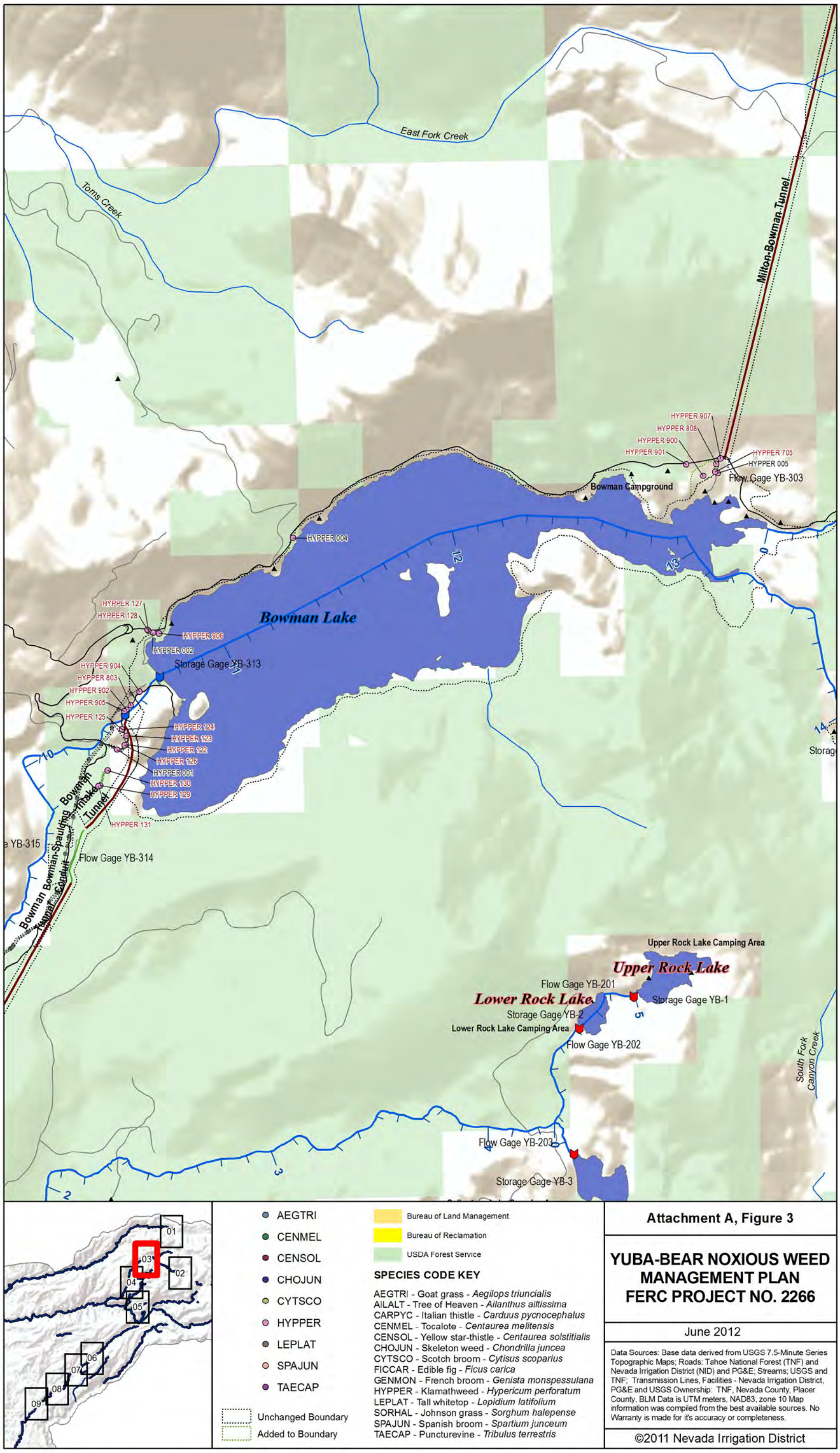
Amended Non-Native Invasive Plant Management Plan

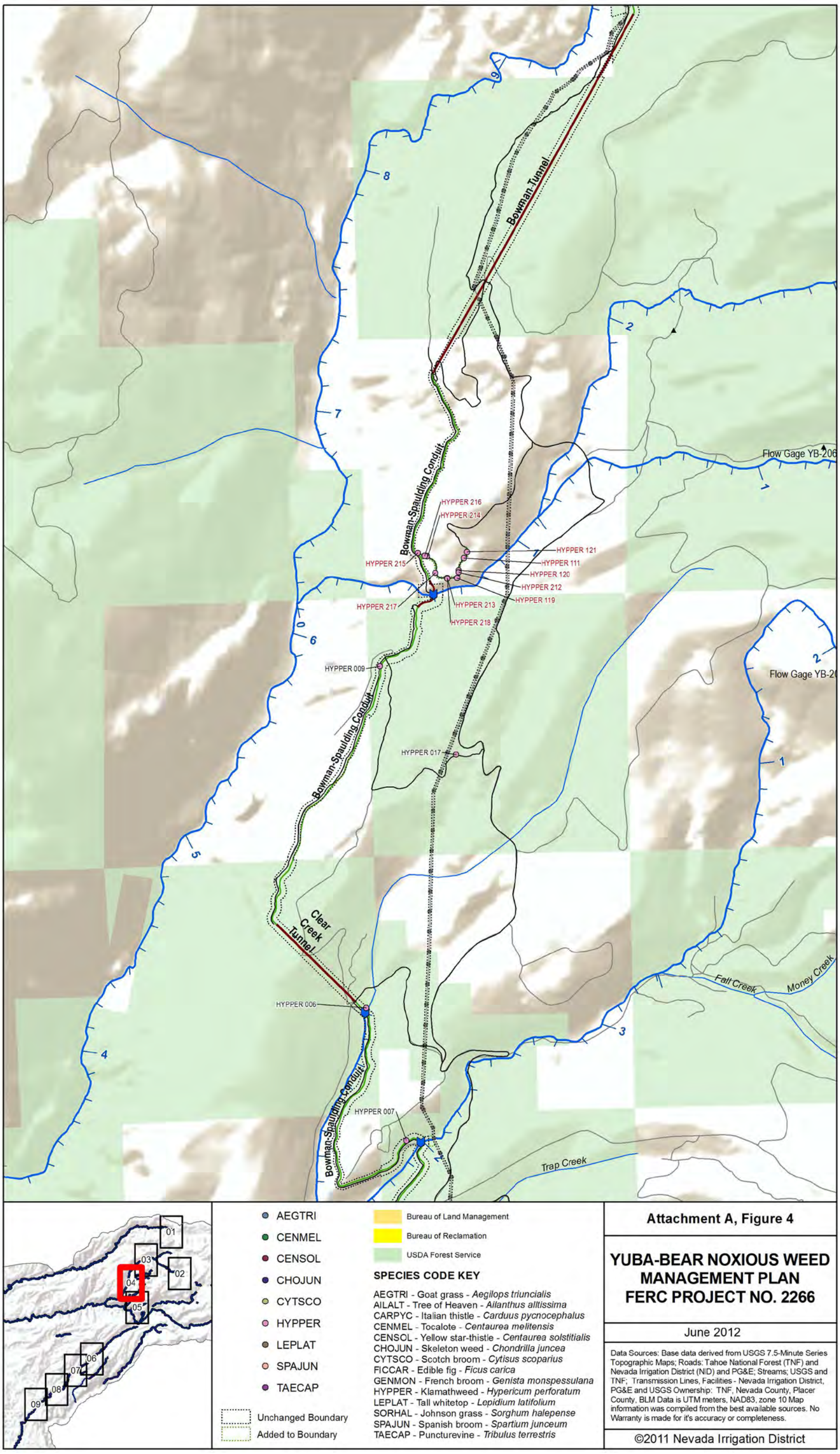
Attachment A

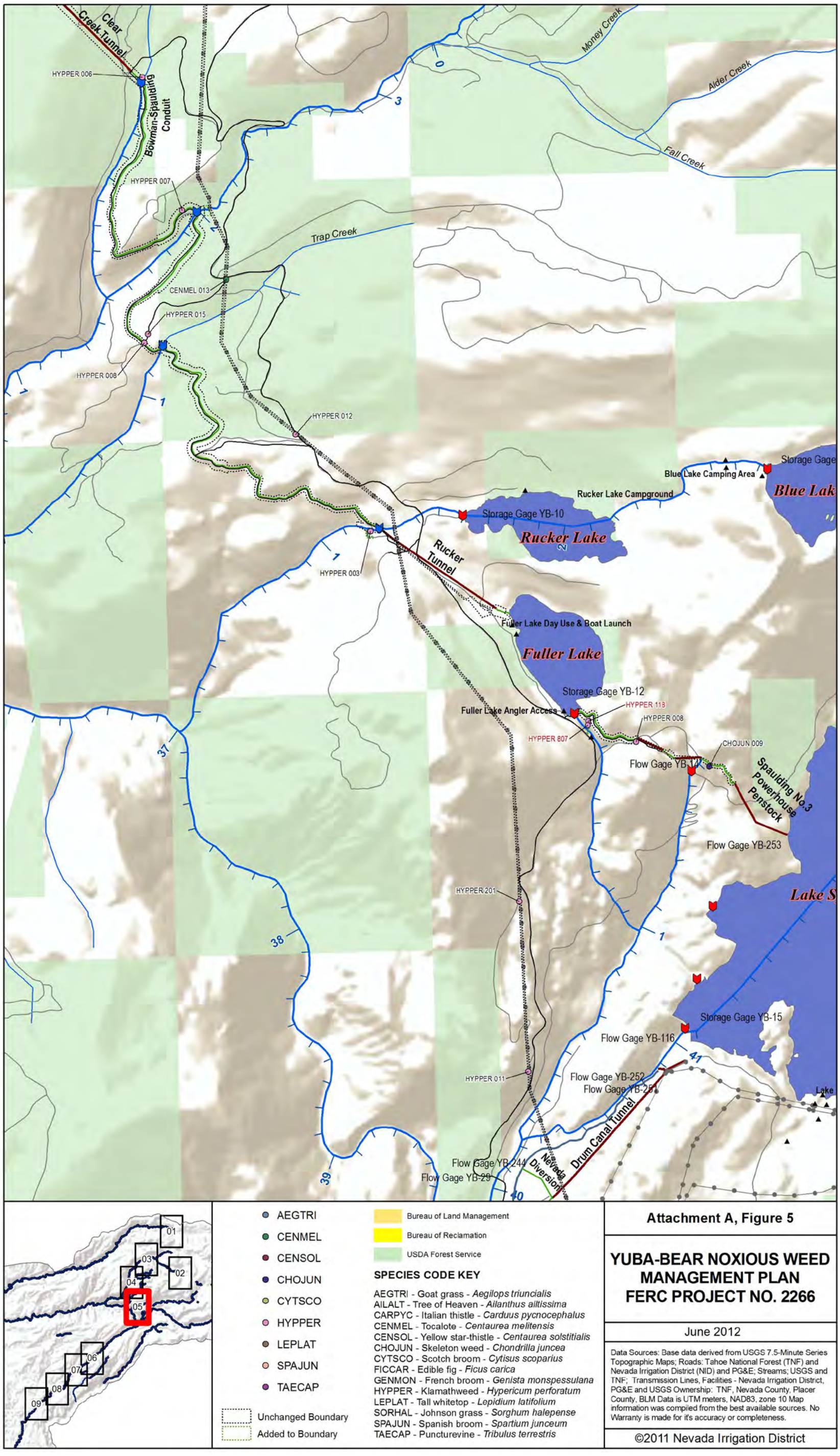
Non-Native Invasive Plant Occurrences: Figures 1 to 9

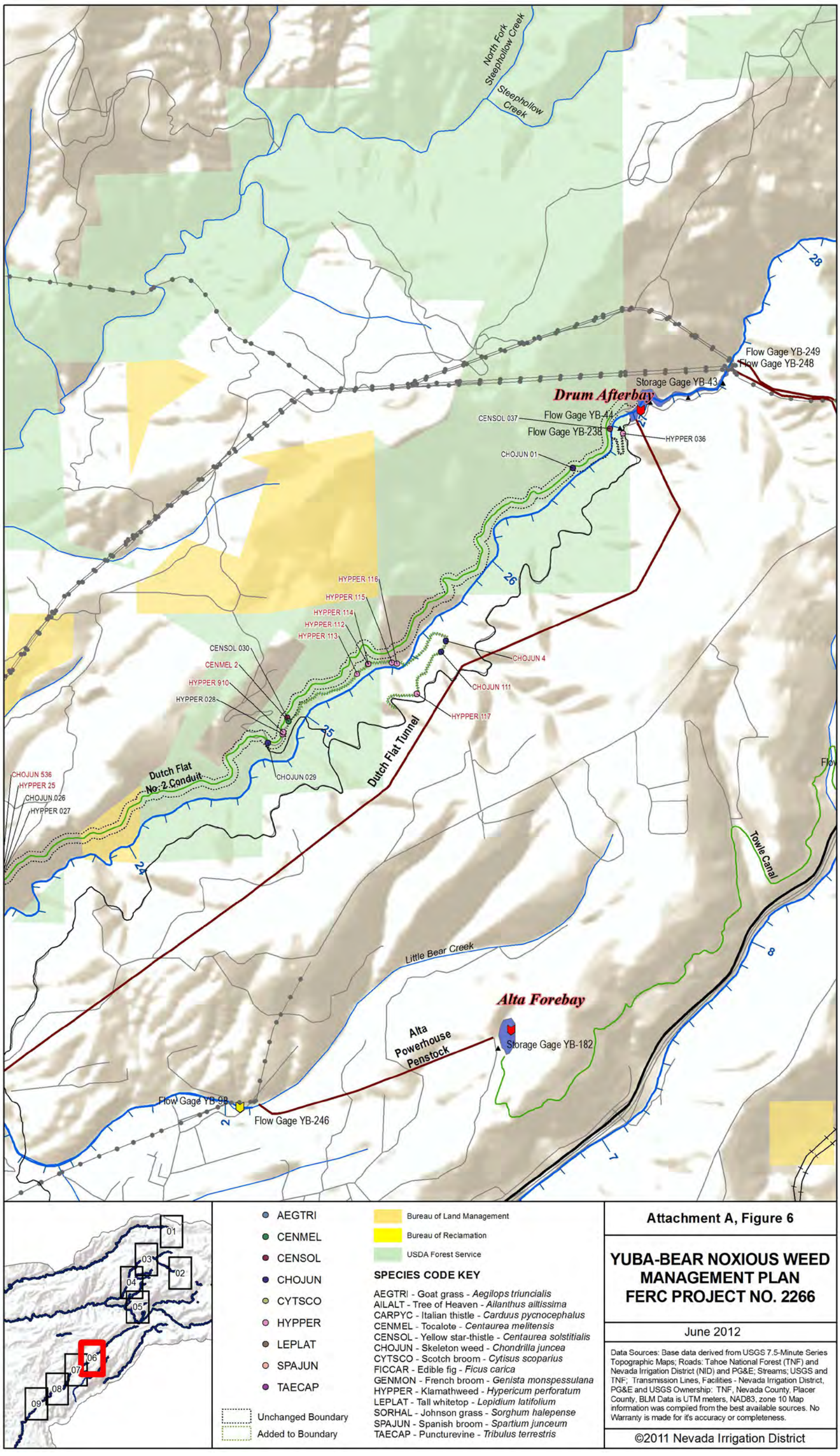

Milton Creek
Milton Diversion Impoundment
Storage Gage YB-302
Flow Gage YB-304
HYPPER 704
HYPPER 113
51
46
Flow Gage YB-301
HYPPER 700
HYPPER 811
Jackson Meadows Vista
47
HYPPER 002
HYPPER 809
HYPPER 810
Storage Gage YB-300
HYPPER 006
Aspen Group Camp
Aspen Picnic
Pass C
Jackson Point Campground
HYPPER 005
HYPPER 003
East Fork Creek
Jackson Meadows Reservoir
Silver Tip Group Campground
Woodcamp Picnic
Fir Top Campground
Findley Campground
Woodcamp Campground
Woodcamp Creek
01
02
03
04
05
06
07
08
09
AEGTRI
CENMEL
CENSOL
CHOJUN
CYTSCO
HYPPER
LEPLAT
SPAJUN
TAECAP
Unchanged Boundary
Added to Boundary
Bureau of Land Management
Bureau of Reclamation
USDA Forest Service
SPECIES CODE KEY
AEGTRI - Goat grass - Aegilops triuncialis
AILALT - Tree of Heaven - Ailanthus alltissima
CARPYC - Italian thistle - Carduus pycnocephalus
CENMEL - Tocalote - Centaurea melitensis
CENSOL - Yellow star-thistle - Centaurea solstitialis
CHOJUN - Skeleton weed - Chondrilla juncea
CYTSCO - Scotch broom - Cytisus scoparius
FICCAR - Edible fig - Ficus carica
GENMON - French broom - Genista monspessulana
HYPPER - Klamathweed - Hypericum perforatum
LEPLAT - Tall whitetop - Lepidium latifolium
SORHAL - Johnson grass - Sorghum halepense
SPAJUN - Spanish broom - Spartium junceum
TAECAP - Puncturevine - Tribulus terrestris
Attachment A, Figure 1
YUBA-BEAR NOXIOUS WEED MANAGEMENT PLAN
FERC PROJECT NO. 2266
June 2012
Data Sources: Base data derived from USGS 7.5-Minute Series Topographic Maps; Roads: Tahoe National Forest (TNF) and Nevada Irrigation District (NID) and PG&E; Streams; USGS and TNF; Transmission Lines, Facilities - Nevada Irrigation District, PG&E and USGS Ownership: TNF, Nevada County, Placer County, BLM Data is UTM meters, NAD83, zone 10 Map information was compiled from the best available sources. No Warranty is made for it's accuracy or completeness.
©2011 Nevada Irrigation District

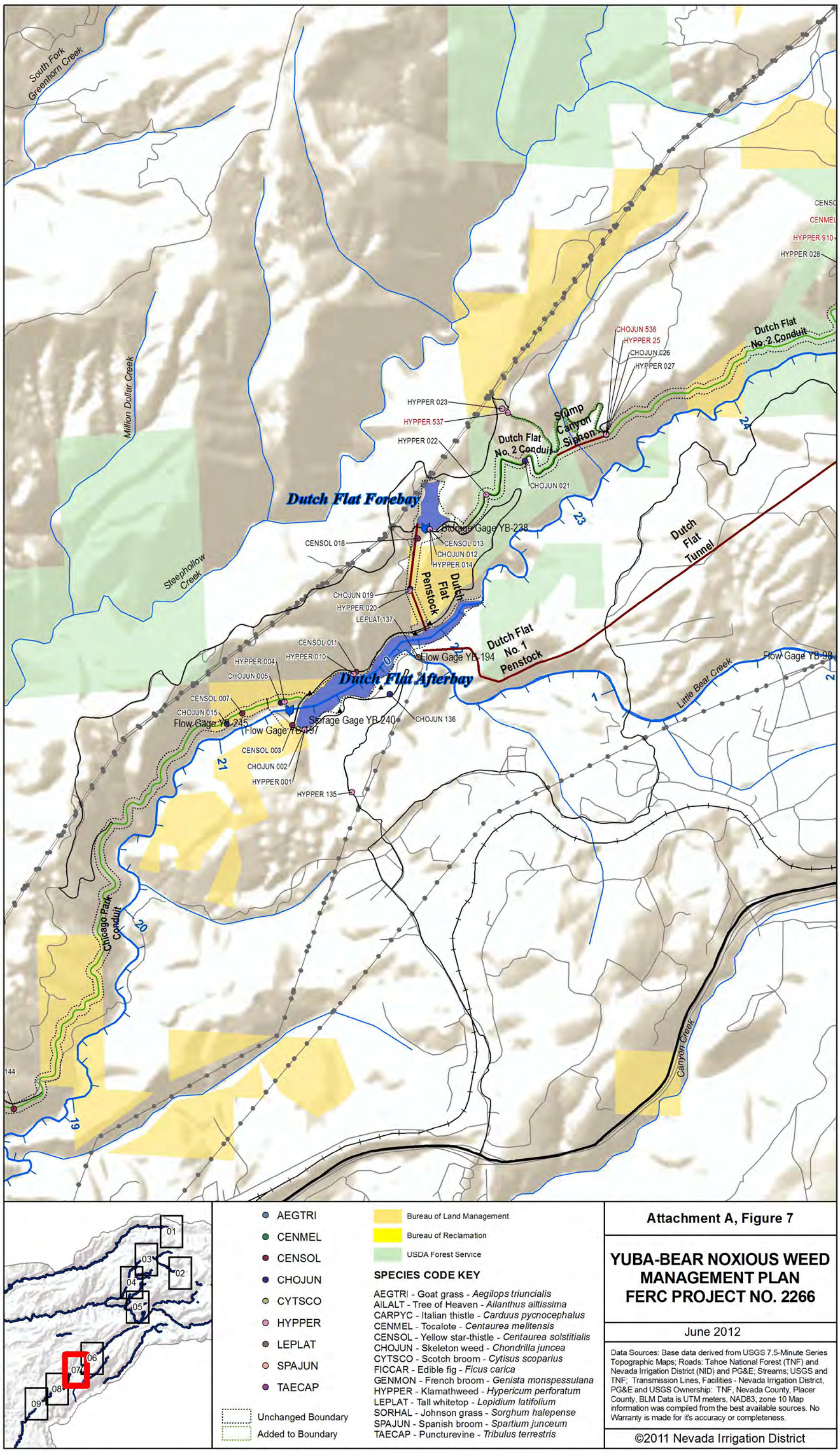

French Creek
Flow Gage YB-308
Storage Gage YB-307
aucherie Lake
17
18
HYPPER 501
Flow Gage YB-306
Storage Gage YB-305
French Lake
Granite Creek
Canyon Creek
01
02
03
04
05
06
07
08
09
AEGTRI
CENMEL
CENSOL
CHOJUN
CYTSCO
HYPPER
LEPLAT
SPAJUN
TAECAP
Unchanged Boundary
Added to Boundary
Bureau of Land Management
Bureau of Reclamation
USDA Forest Service
SPECIES CODE KEY
AEGTRI - Goat grass - Aegilops triuncialis
AILALT - Tree of Heaven - Ailanthus ailtissima
CARPYC - Italian thistle - Carduus pycnocephalus
CENMEL - Tocalote - Centaurea melitensis
CENSOL - Yellow star-thistle - Centaurea solstitialis
CHOJUN - Skeleton weed - Chondrilla juncea
CYTSCO - Scotch broom - Cytisus scoparius
FICCAR - Edible fig - Ficus carica
GENMON - French broom - Genista monspessulana
HYPPER - Klamathweed - Hypericum perforatum
LEPLAT - Tall whitetop - Lepidium latifolium
SORHAL - Johnson grass - Sorghum halepense
SPAJUN - Spanish broom - Spartium junceum
TAECAP - Puncturevine - Tribulus terrestris
Attachment A, Figure 2
YUBA-BEAR NOXIOUS WEED MANAGEMENT PLAN
FERC PROJECT NO. 2266
June 2012
Data Sources: Base data derived from USGS 7.5-Minute Series Topographic Maps; Roads: Tahoe National Forest (TNF) and Nevada Irrigation District (NID) and PG&E; Streams; USGS and TNF; Transmission Lines, Facilities - Nevada Irrigation District, PG&E and USGS Ownership: TNF, Nevada County, Placer County, BLM Data is UTM meters, NAD83, zone 10 Map information was compiled from the best available sources. No Warranty is made for it's accuracy or completeness.
©2011 Nevada Irrigation District

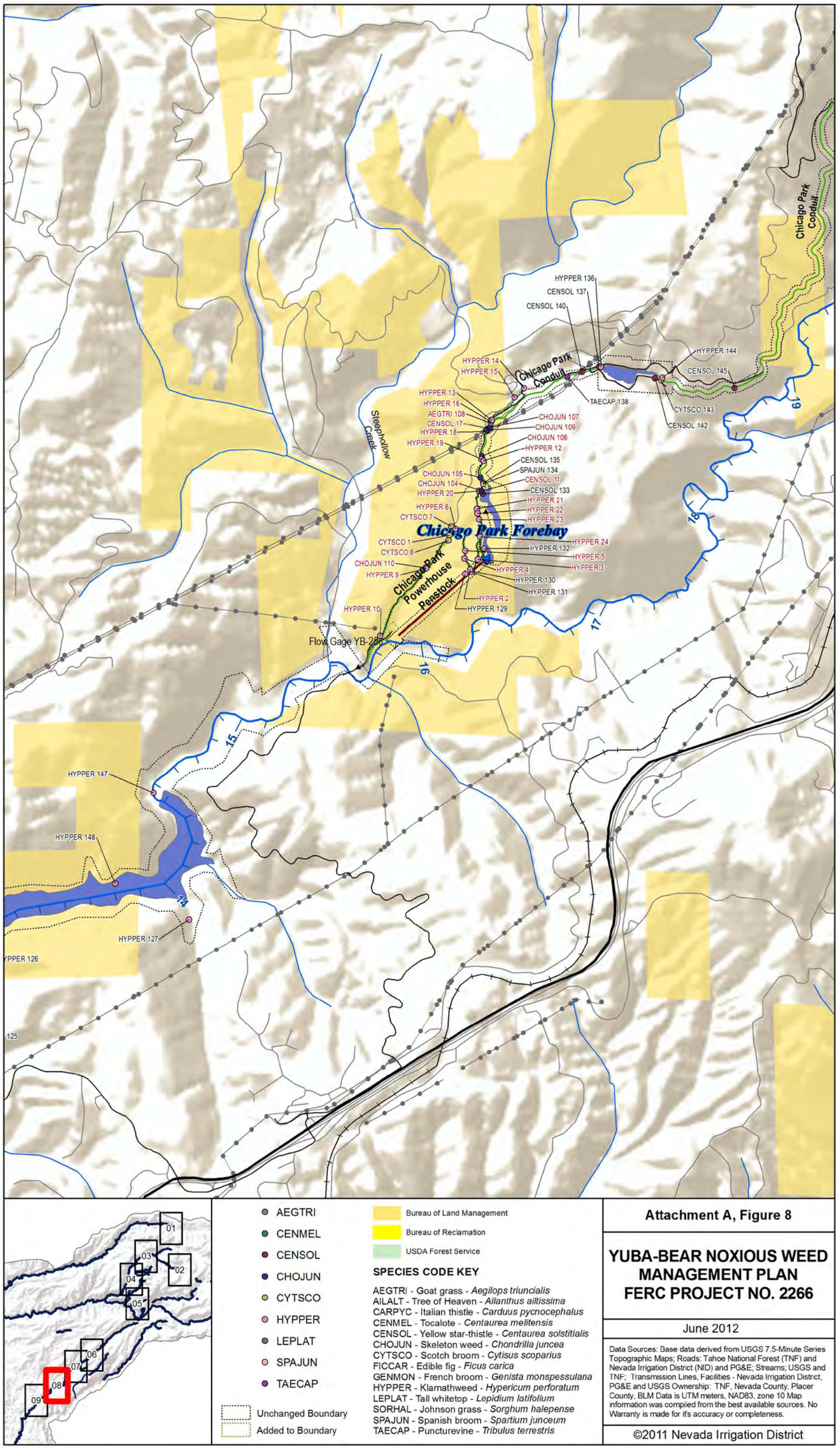

East Fork Creek
Toms Creek
Milton-Bowman Tunnel
HYPPER 907
HYPPER 808
HYPPER 900
HYPPER 901
HYPPER 705
HYPPER 005
Flow Gage YB-303
Bowman Campground
HYPPER 004
Bowman Lake
Storage Gage YB-313
HYPPER 127
HYPPER 128
HYPPER 906
HYPPER 002
HYPPER 904
HYPPER 803
HYPPER 902
HYPPER 905
HYPPER 125
HYPPER 124
HYPPER 123
HYPPER 122
HYPPER 126
HYPPER 001
HYPPER 130
HYPPER 129
HYPPER 131
Bowman Spaulding Conduit
Bowman Intake Tunnel
Flow Gage YB-314
Upper Rock Lake Camping Area
Upper Rock Lake
Flow Gage YB-201
Lower Rock Lake
Storage Gage YB-1
Storage Gage YB-2
Lower Rock Lake Camping Area
Flow Gage YB-202
Flow Gage YB-203
Storage Gage YB-3
South Fork Canyon Creek
AEGTRI
CENMEL
CENSOL
CHOJUN
CYTSCO
HYPPER
LEPLAT
SPAJUN
TAECAP
Unchanged Boundary
Added to Boundary
Bureau of Land Management
Bureau of Reclamation
USDA Forest Service
SPECIES CODE KEY
AEGTRI - Goat grass - Aegilops triuncialis
AILALT - Tree of Heaven - Ailanthus ailtissima
CARPYC - Italian thistle - Carduus pycnocephalus
CENMEL - Tocalote - Centaurea melitensis
CENSOL - Yellow star-thistle - Centaurea solstitialis
CHOJUN - Skeleton weed - Chondrilla juncea
CYTSCO - Scotch broom - Cytisus scoparius
FICCAR - Edible fig - Ficus carica
GENMON - French broom - Genista monspessulana
HYPPER - Klamathweed - Hypericum perforatum
LEPLAT - Tall whitetop - Lepidium latifolium
SORHAL - Johnson grass - Sorghum halepense
SPAJUN - Spanish broom - Spartium junceum
TAECAP - Puncturevine - Tribulus terrestris
Attachment A, Figure 3
YUBA-BEAR NOXIOUS WEED MANAGEMENT PLAN
FERC PROJECT NO. 2266
June 2012
Data Sources: Base data derived from USGS 7.5-Minute Series Topographic Maps; Roads: Tahoe National Forest (TNF) and Nevada Irrigation District (NID) and PG&E; Streams; USGS and TNF; Transmission Lines, Facilities - Nevada Irrigation District, PG&E and USGS Ownership: TNF, Nevada County, Placer County, BLM Data is UTM meters, NAD83, zone 10 Map information was compiled from the best available sources. No Warranty is made for it's accuracy or completeness.
©2011 Nevada Irrigation District

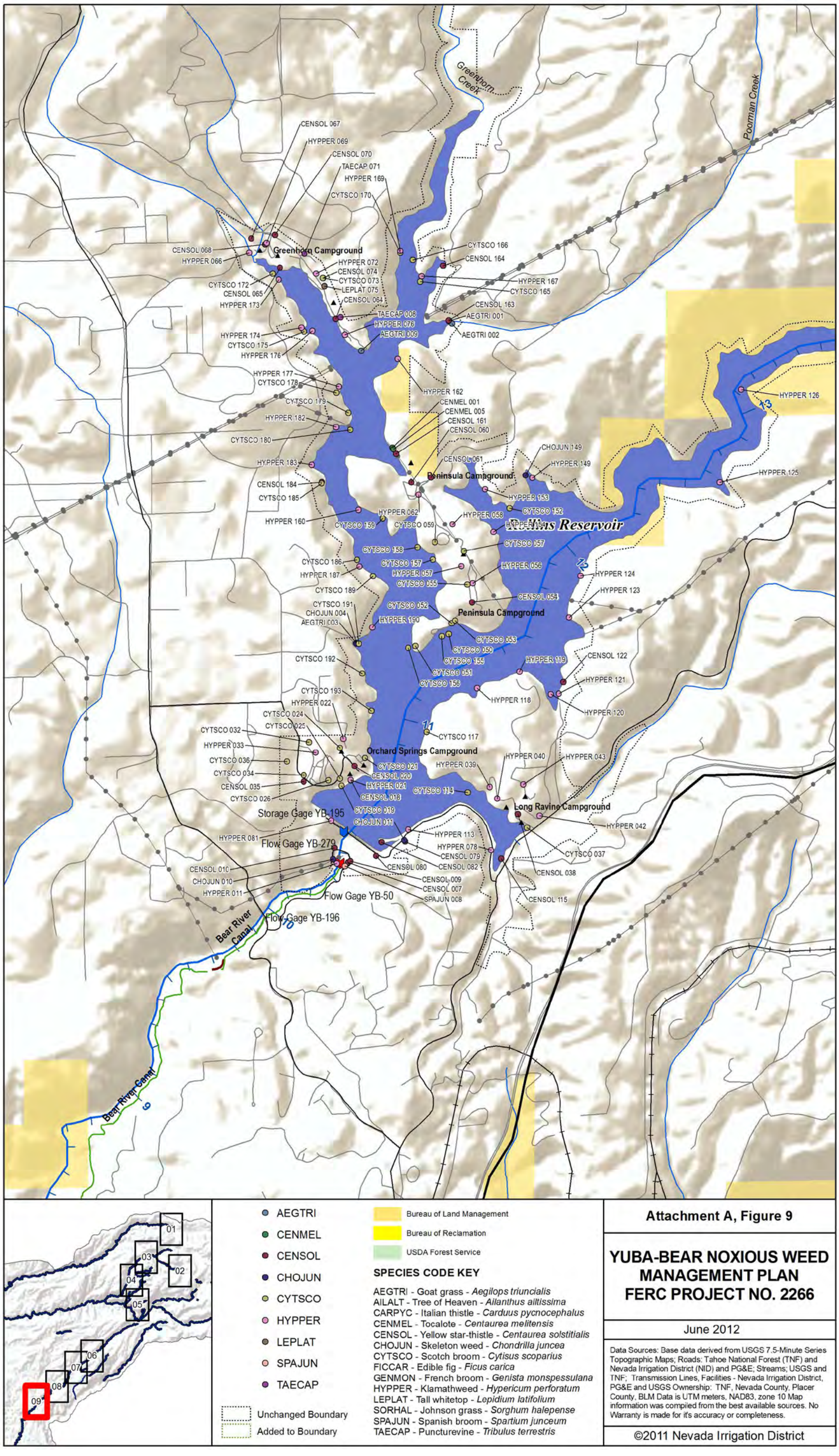



Clear Creek Tunnel
HYPPER 006
Bowman-Spaulding Conduit
HYPPER 007
Money Creek
Alder Creek
Fall Creek
Trap Creek
CENMEL 013
HYPPER 015
HYPPER 008
HYPPER 012
Blue Lake Camping Area
Storage Gage
Blue Lak
Rucker Lake Campground
Storage Gage YB-10
Rucker Lake
Rucker Tunnel
HYPPER 003
Fuller Lake Day Use & Boat Launch
Fuller Lake
Storage Gage YB-12
Fuller Lake Angler Access
HYPPER 118
HYPPER 008
HYPPER 807
CHOJUN 009
Flow Gage YB-14
Spaulding No.3 Powerhouse Penstock
Flow Gage YB-253
HYPPER 201
Lake S
Storage Gage YB-15
Flow Gage YB-116
HYPPER 011
Flow Gage YB-252
Flow Gage YB-251
Lake
Drum Canal Tunnel
Nevada Diversion
Flow Gage YB-244
Flow Gage YB-29
01
02
03
04
05
06
07
08
09
AEGTRI
CENMEL
CENSOL
CHOJUN
CYTSCO
HYPPER
LEPLAT
SPAJUN
TAECAP
Unchanged Boundary
Added to Boundary
Bureau of Land Management
Bureau of Reclamation
USDA Forest Service
SPECIES CODE KEY
AEGTRI - Goat grass - Aegilops triuncialis
AILALT - Tree of Heaven - Ailanthus ailtissima
CARPYC - Italian thistle - Carduus pycnocephalus
CENMEL - Tocalote - Centaurea melitensis
CENSOL - Yellow star-thistle - Centaurea solstitialis
CHOJUN - Skeleton weed - Chondrilla juncea
CYTSCO - Scotch broom - Cytisus scoparius
FICCAR - Edible fig - Ficus carica
GENMON - French broom - Genista monspessulana
HYPPER - Klamathweed - Hypericum perforatum
LEPLAT - Tall whitetop - Lepidium latifolium
SORHAL - Johnson grass - Sorghum halepense
SPAJUN - Spanish broom - Spartium junceum
TAECAP - Puncturevine - Tribulus terrestris
Attachment A, Figure 5
YUBA-BEAR NOXIOUS WEED MANAGEMENT PLAN
FERC PROJECT NO. 2266
June 2012
Data Sources: Base data derived from USGS 7.5-Minute Series Topographic Maps; Roads: Tahoe National Forest (TNF) and Nevada Irrigation District (NID) and PG&E; Streams; USGS and TNF; Transmission Lines, Facilities - Nevada Irrigation District, PG&E and USGS Ownership: TNF, Nevada County, Placer County, BLM Data is UTM meters, NAD83, zone 10 Map information was compiled from the best available sources. No Warranty is made for it's accuracy or completeness.
©2011 Nevada Irrigation District


North Fork Steephollow Creek
Steephollow Creek
Flow Gage YB-249
Flow Gage YB-248
Storage Gage YB-43
Drum Afterbay
CENSOL 037
Flow Gage YB-44
Flow Gage YB-238
HYPPER 036
CHOJUN 01
HYPPER 116
HYPPER 115
HYPPER 114
HYPPER 112
HYPPER 113
CENSOL 030
CENMEL 2
HYPPER 910
HYPPER 028
CHOJUN 4
CHOJUN 111
HYPPER 117
CHOJUN 029
Dutch Flat Tunnel
Dutch Flat No. 2 Conduit
CHOJUN 536
HYPPER 25
CHOJUN 026
HYPPER 027
Towle Canal
Little Bear Creek
Alta Forebay
Alta Powerhouse Penstock
Storage Gage YB-182
Flow Gage YB-98
Flow Gage YB-246
28
26
25
24
8
7
2
AEGTRI
CENMEL
CENSOL
CHOJUN
CYTSCO
HYPPER
LEPLAT
SPAJUN
TAECAP
Unchanged Boundary
Added to Boundary
Bureau of Land Management
Bureau of Reclamation
USDA Forest Service
SPECIES CODE KEY
AEGTRI - Goat grass - Aegilops triuncialis
AILALT - Tree of Heaven - Ailanthus ailtissima
CARPYC - Italian thistle - Carduus pycnocephalus
CENMEL - Tocalote - Centaurea melitensis
CENSOL - Yellow star-thistle - Centaurea solstitialis
CHOJUN - Skeleton weed - Chondrilla juncea
CYTSCO - Scotch broom - Cytisus scoparius
FICCAR - Edible fig - Ficus carica
GENMON - French broom - Genista monspessulana
HYPPER - Klamathweed - Hypericum perforatum
LEPLAT - Tall whitetop - Lepidium latifolium
SORHAL - Johnson grass - Sorghum halepense
SPAJUN - Spanish broom - Spartium junceum
TAECAP - Puncturevine - Tribulus terrestris
01
02
03
04
05
06
07
08
09
Attachment A, Figure 6
YUBA-BEAR NOXIOUS WEED MANAGEMENT PLAN
FERC PROJECT NO. 2266
June 2012
Data Sources: Base data derived from USGS 7.5-Minute Series Topographic Maps; Roads: Tahoe National Forest (TNF) and Nevada Irrigation District (NID) and PG&E; Streams; USGS and TNF; Transmission Lines, Facilities - Nevada Irrigation District, PG&E and USGS Ownership: TNF, Nevada County, Placer County, BLM Data is UTM meters, NAD83, zone 10 Map information was compiled from the best available sources. No Warranty is made for it's accuracy or completeness.
©2011 Nevada Irrigation District


South Fork Greenhorn Creek
Million Dollar Creek
Steephollow Creek
Dutch Flat Forebay
Dutch Flat Afterbay
Dutch Flat No. 2 Conduit
Dutch Flat Penstock
Dutch Flat Tunnel
Dutch Flat No. 1 Penstock
Stump Canyon Siphon
Chicago Park Conduit
Little Bear Creek
Canyon Creek
Storage Gage YB-238
Storage Gage YB-240
Flow Gage YB-194
Flow Gage YB-245
Flow Gage YB-98
CENSO
CENMEL
HYPPER 910
HYPPER 028
CHOJUN 536
HYPPER 25
CHOJUN 026
HYPPER 027
HYPPER 023
HYPPER 537
HYPPER 022
CHOJUN 021
CENSOL 018
CENSOL 013
CHOJUN 012
HYPPER 014
CHOJUN 019
HYPPER 020
LEPLAT 137
CENSOL 011
HYPPER 010
HYPPER 004
CHOJUN 005
CENSOL 007
CHOJUN 015
CHOJUN 136
CENSOL 003
CHOJUN 002
HYPPER 001
HYPPER 135
24
23
22
21
20
19
144
01
02
03
04
05
06
07
08
09
AEGTRI
CENMEL
CENSOL
CHOJUN
CYTSCO
HYPPER
LEPLAT
SPAJUN
TAECAP
Unchanged Boundary
Added to Boundary
Bureau of Land Management
Bureau of Reclamation
USDA Forest Service
SPECIES CODE KEY
AEGTRI - Goat grass - Aegilops triuncialis
AILALT - Tree of Heaven - Ailanthus ailtissima
CARPYC - Italian thistle - Carduus pycnocephalus
CENMEL - Tocalote - Centaurea melitensis
CENSOL - Yellow star-thistle - Centaurea solstitialis
CHOJUN - Skeleton weed - Chondrilla juncea
CYTSCO - Scotch broom - Cytisus scoparius
FICCAR - Edible fig - Ficus carica
GENMON - French broom - Genista monspessulana
HYPPER - Klamathweed - Hypericum perforatum
LEPLAT - Tall whitetop - Lepidium latifolium
SORHAL - Johnson grass - Sorghum halepense
SPAJUN - Spanish broom - Spartium junceum
TAECAP - Puncturevine - Tribulus terrestris
Attachment A, Figure 7
YUBA-BEAR NOXIOUS WEED MANAGEMENT PLAN
FERC PROJECT NO. 2266
June 2012
Data Sources: Base data derived from USGS 7.5-Minute Series Topographic Maps; Roads: Tahoe National Forest (TNF) and Nevada Irrigation District (NID) and PG&E; Streams; USGS and TNF; Transmission Lines, Facilities - Nevada Irrigation District, PG&E and USGS Ownership: TNF, Nevada County, Placer County, BLM Data is UTM meters, NAD83, zone 10 Map information was compiled from the best available sources. No Warranty is made for it's accuracy or completeness.
©2011 Nevada Irrigation District


Chicago Park Conduit
HYPPER 136
CENSOL 137
CENSOL 140
HYPPER 144
CENSOL 145
HYPPER 14
HYPPER 15
Chicago Park Conduit
HYPPER 13
HYPPER 16
AEGTRI 108
CENSOL 17
HYPPER 18
HYPPER 19
CHOJUN 107
CHOJUN 109
CHOJUN 106
HYPPER 12
CENSOL 135
SPAJUN 134
CENSOL 11
CENSOL 133
HYPPER 21
HYPPER 22
HYPPER 23
HYPPER 24
HYPPER 132
HYPPER 5
HYPPER 3
HYPPER 4
HYPPER 130
HYPPER 131
HYPPER 2
HYPPER 129
TAECAP 138
CYTSCO 143
CENSOL 142
Steephollow Creek
CHOJUN 105
CHOJUN 104
HYPPER 20
HYPPER 6
CYTSCO 7
CYTSCO 1
CYTSCO 8
CHOJUN 110
HYPPER 9
HYPPER 10
Chicago Park Forebay
Chicago Park Powerhouse
Penstock
Flow Gage YB-25
HYPPER 147
HYPPER 148
HYPPER 127
HYPPER 126
125
19
16
17
15
14
AEGTRI
CENMEL
CENSOL
CHOJUN
CYTSCO
HYPPER
LEPLAT
SPAJUN
TAECAP
Unchanged Boundary
Added to Boundary
Bureau of Land Management
Bureau of Reclamation
USDA Forest Service
SPECIES CODE KEY
AEGTRI - Goat grass - Aegilops triuncialis
AILALT - Tree of Heaven - Ailanthus ailtissima
CARPYC - Italian thistle - Carduus pycnocephalus
CENMEL - Tocalote - Centaurea melitensis
CENSOL - Yellow star-thistle - Centaurea solstitialis
CHOJUN - Skeleton weed - Chondrilla juncea
CYTSCO - Scotch broom - Cytisus scoparius
FICCAR - Edible fig - Ficus carica
GENMON - French broom - Genista monspessulana
HYPPER - Klamathweed - Hypericum perforatum
LEPLAT - Tall whitetop - Lepidium latifolium
SORHAL - Johnson grass - Sorghum halepense
SPAJUN - Spanish broom - Spartium junceum
TAECAP - Puncturevine - Tribulus terrestris
01
02
03
04
05
06
07
08
09
Attachment A, Figure 8
YUBA-BEAR NOXIOUS WEED MANAGEMENT PLAN
FERC PROJECT NO. 2266
June 2012
Data Sources: Base data derived from USGS 7.5-Minute Series Topographic Maps; Roads: Tahoe National Forest (TNF) and Nevada Irrigation District (NID) and PG&E; Streams; USGS and TNF; Transmission Lines, Facilities - Nevada Irrigation District, PG&E and USGS Ownership: TNF, Nevada County, Placer County, BLM Data is UTM meters, NAD83, zone 10 Map information was compiled from the best available sources. No Warranty is made for it's accuracy or completeness.
©2011 Nevada Irrigation District


Greenhorn Creek
Poorman Creek
CENSOL 067
HYPPER 069
CENSOL 070
TAECAP 071
HYPPER 169
CYTSCO 170
CENSOL 068
HYPPER 066
Greenhorn Campground
HYPPER 072
CENSOL 074
CYTSCO 073
LEPLAT 075
CENSOL 064
CYTSCO 172
CENSOL 065
HYPPER 173
TAECAP 008
HYPPER 076
AEGTRI 009
HYPPER 174
CYTSCO 175
HYPPER 176
HYPPER 177
CYTSCO 178
CYTSCO 179
HYPPER 182
CYTSCO 180
HYPPER 183
CENSOL 184
CYTSCO 185
HYPPER 160
CYTSCO 166
CENSOL 164
HYPPER 167
CYTSCO 165
CENSOL 163
AEGTRI 001
AEGTRI 002
HYPPER 162
CENMEL 001
CENMEL 005
CENSOL 161
CENSOL 060
CENSOL 061
Peninsula Campground
CHOJUN 149
HYPPER 149
HYPPER 153
CYTSCO 152
HYPPER 125
HYPPER 126
T3
Almas Reservoir
HYPPER 062
HYPPER 058
CYTSCO 159
CYTSCO 059
CYTSCO 158
CYTSCO 057
CYTSCO 186
CYTSCO 157
HYPPER 057
HYPPER 056
HYPPER 187
CYTSCO 055
CYTSCO 189
CENSOL 054
CYTSCO 191
CHOJUN 004
AEGTRI 003
CYTSCO 052
HYPPER 190
Peninsula Campground
CYTSCO 053
CYTSCO 050
CYTSCO 155
CYTSCO 051
CYTSCO 156
CYTSCO 192
HYPPER 119
CENSOL 122
HYPPER 121
HYPPER 118
HYPPER 120
CYTSCO 193
HYPPER 022
CYTSCO 024
CYTSCO 025
CYTSCO 032
HYPPER 033
CYTSCO 036
CYTSCO 034
CENSOL 035
CYTSCO 026
T1
CYTSCO 117
Orchard Springs Campground
CYTSCO 021
CENSOL 020
HYPPER 021
CENSOL 018
CYTSCO 019
CHOJUN 011
Storage Gage YB-195
HYPPER 081
Flow Gage YB-279
CENSOL 010
CHOJUN 010
HYPPER 011
Flow Gage YB-50
Flow Gage YB-196
T2
Bear River Canal
HYPPER 039
HYPPER 040
HYPPER 043
CYTSCO 114
Long Ravine Campground
HYPPER 042
HYPPER 113
HYPPER 078
CENSOL 079
CENSOL 080
CENSOL 082
CYTSCO 037
CENSOL 038
CENSOL 009
CENSOL 007
SPAJUN 008
CENSOL 115
01
02
03
04
05
06
07
08
09
AEGTRI
CENMEL
CENSOL
CHOJUN
CYTSCO
HYPPER
LEPLAT
SPAJUN
TAECAP
Unchanged Boundary
Added to Boundary
Bureau of Land Management
Bureau of Reclamation
USDA Forest Service
SPECIES CODE KEY
AEGTRI - Goat grass - Aegilops triuncialis
AILALT - Tree of Heaven - Ailanthus ailtissima
CARPYC - Italian thistle - Carduus pycnocephalus
CENMEL - Tocalote - Centaurea melitensis
CENSOL - Yellow star-thistle - Centaurea solstitialis
CHOJUN - Skeleton weed - Chondrilla juncea
CYTSCO - Scotch broom - Cytisus scoparius
FICCAR - Edible fig - Ficus carica
GENMON - French broom - Genista monspessulana
HYPPER - Klamathweed - Hypericum perforatum
LEPLAT - Tall whitetop - Lepidium latifolium
SORHAL - Johnson grass - Sorghum halepense
SPAJUN - Spanish broom - Spartium junceum
TAECAP - Puncturevine - Tribulus terrestris
Attachment A, Figure 9
YUBA-BEAR NOXIOUS WEED MANAGEMENT PLAN
FERC PROJECT NO. 2266
June 2012
Data Sources: Base data derived from USGS 7.5-Minute Series Topographic Maps; Roads: Tahoe National Forest (TNF) and Nevada Irrigation District (NID) and PG&E; Streams; USGS and TNF; Transmission Lines, Facilities - Nevada Irrigation District, PG&E and USGS Ownership: TNF, Nevada County, Placer County, BLM Data is UTM meters, NAD83, zone 10 Map information was compiled from the best available sources. No Warranty is made for it's accuracy or completeness.
©2011 Nevada Irrigation District

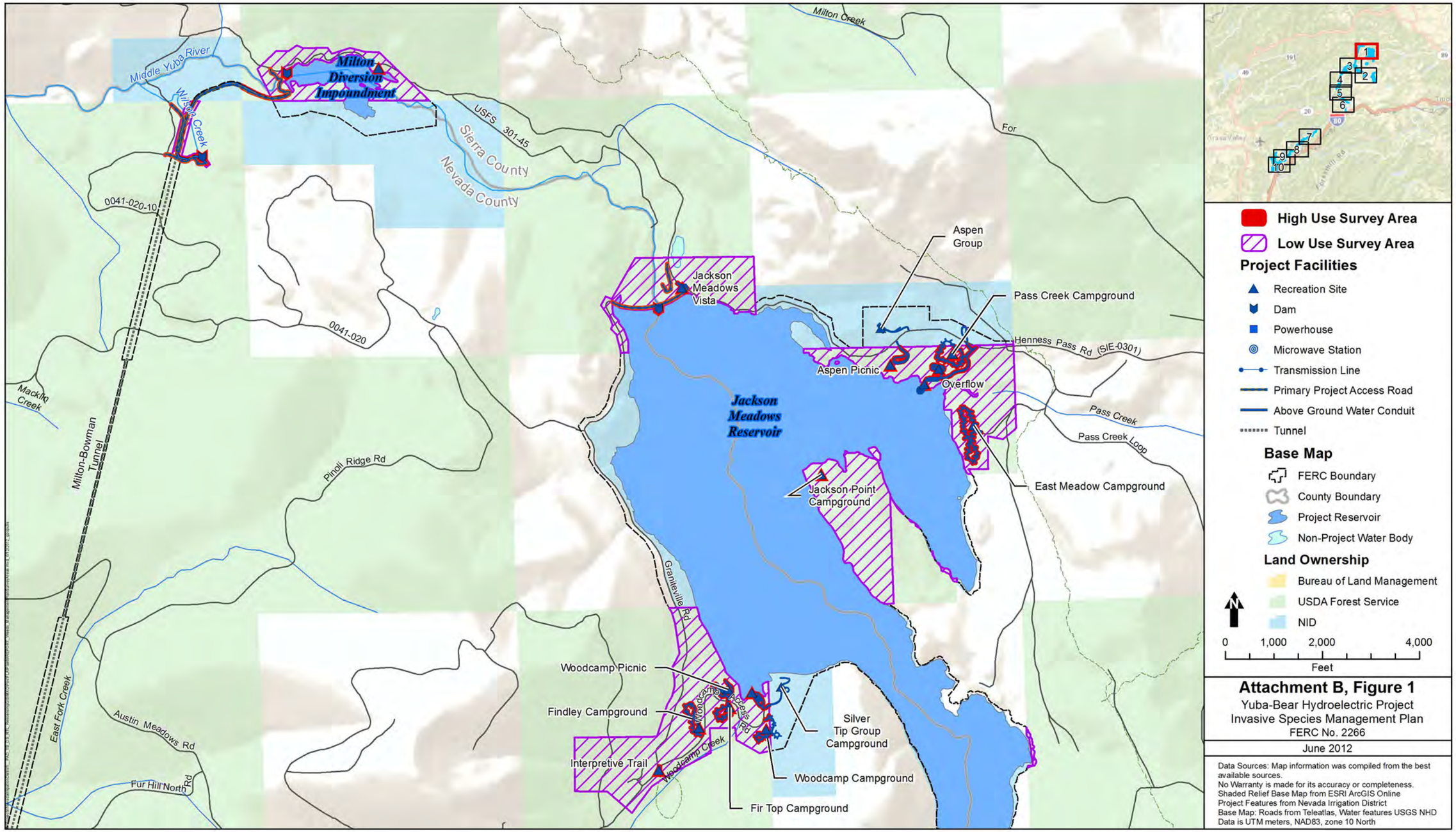
Page Left Blank

Yuba-Bear Hydroelectric Project
FERC Project No. 2266-096

Amended Non-Native Invasive Plant Management Plan

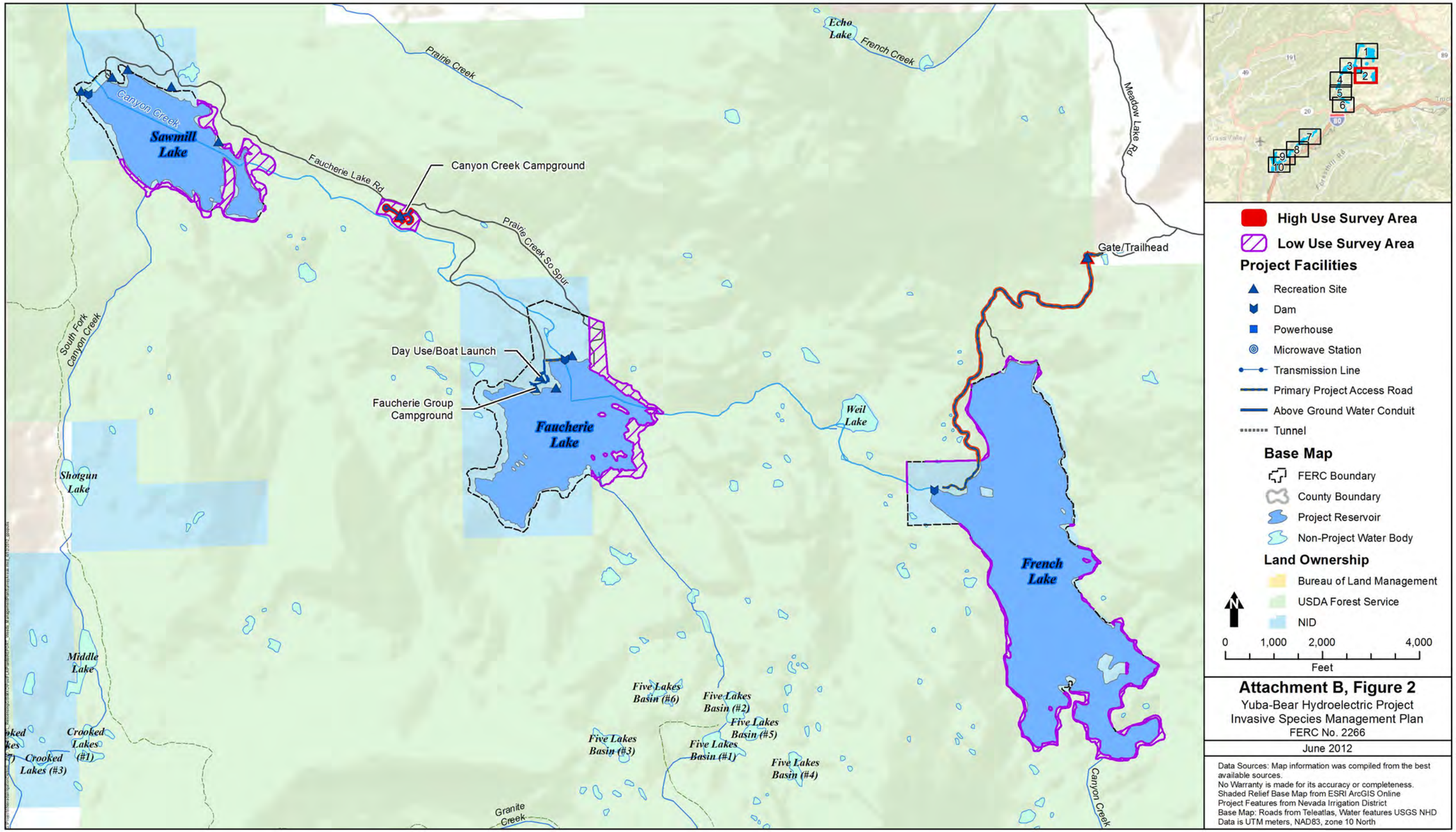
Attachment B

Non-Native Invasive Plant Survey Area: Figures 1 to 10



Attachment B, Figure 1
Yuba-Bear Hydroelectric Project
Invasive Species Management Plan
FERC No. 2266
June 2012

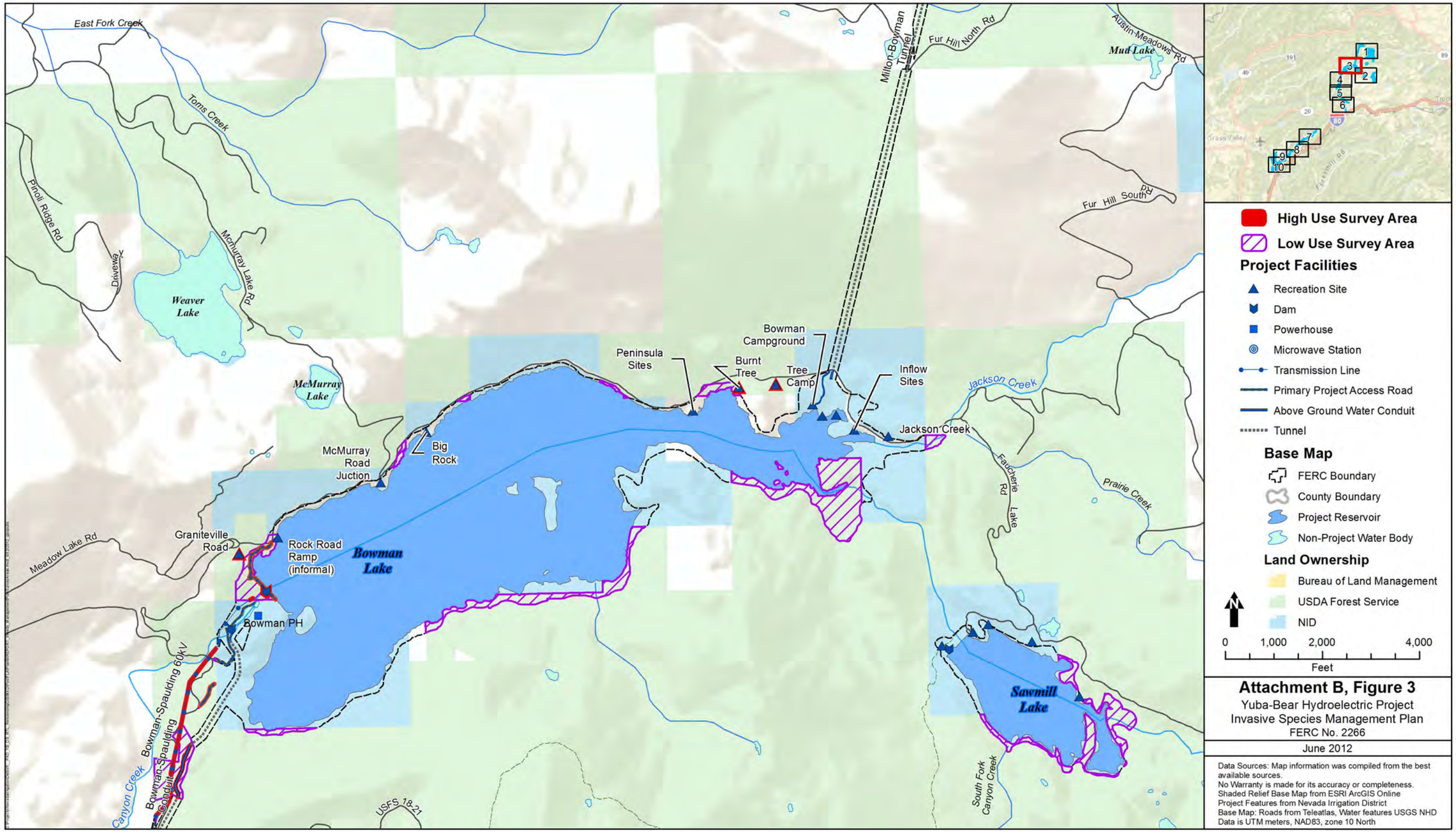
Data Sources: Map information was compiled from the best available sources.
No Warranty is made for its accuracy or completeness.
Shaded Relief Base Map from ESRI ArcGIS Online
Project Features from Nevada Irrigation District
Base Map: Roads from Teleatlas, Water features USGS NHD
Data is UTM meters, NAD83, zone 10 North



Attachment B, Figure 2
Yuba-Bear Hydroelectric Project
Invasive Species Management Plan
FERC No. 2266

June 2012

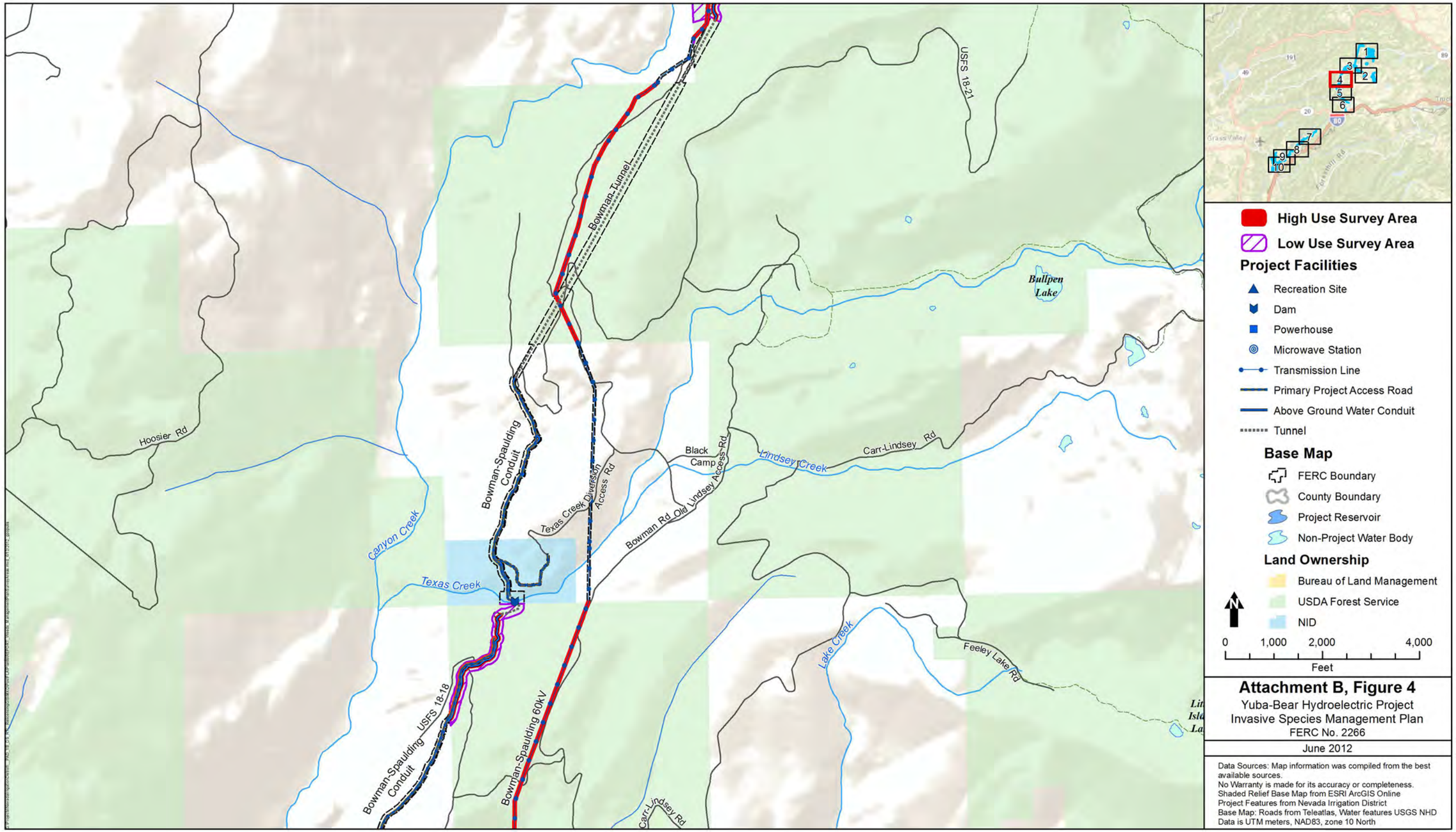
Data Sources: Map information was compiled from the best available sources.
No Warranty is made for its accuracy or completeness.
Shaded Relief Base Map from ESRI ArcGIS Online
Project Features from Nevada Irrigation District
Base Map: Roads from Teleatlas, Water features USGS NHD
Data is UTM meters, NAD83, zone 10 North

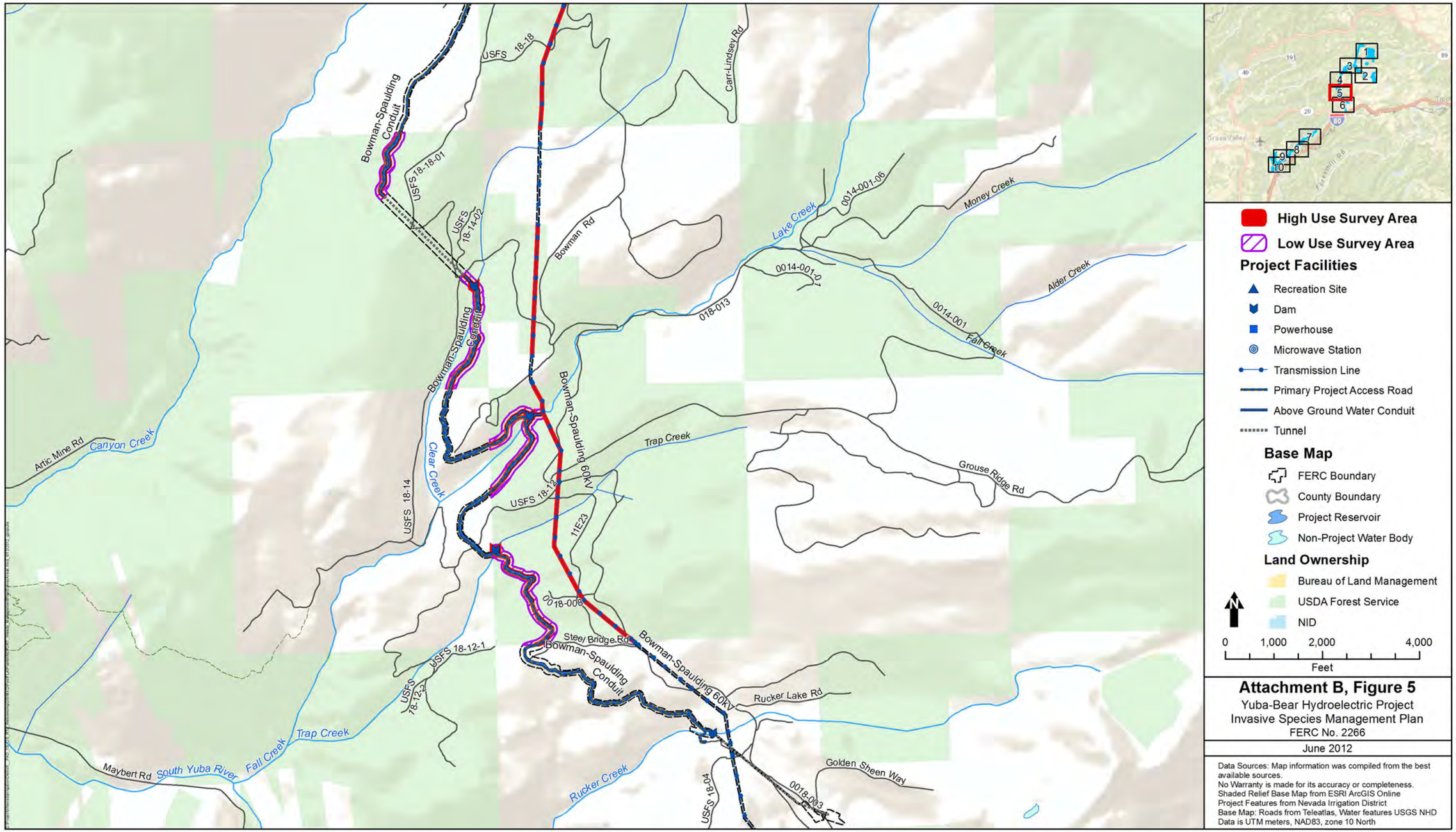


Attachment B, Figure 3
Yuba-Bear Hydroelectric Project
Invasive Species Management Plan
FERC No. 2266

June 2012

Data Sources: Map information was compiled from the best available sources.
No Warranty is made for its accuracy or completeness.
Shaded Relief Base Map from ESRI ArcGIS Online
Project Features from Nevada Irrigation District
Base Map: Roads from Teleatlas, Water features USGS NHD
Data is UTM meters, NAD83, zone 10 North

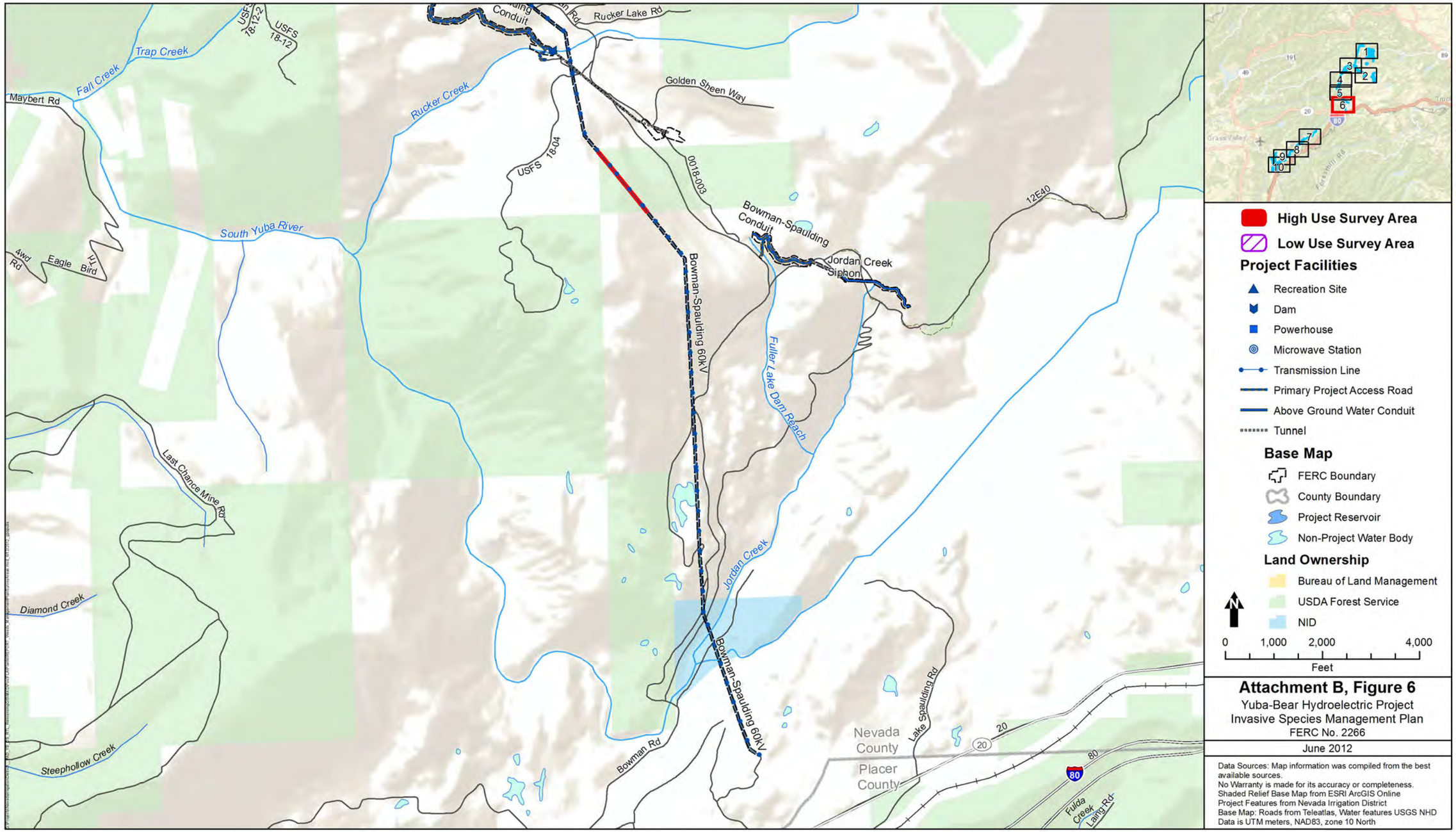


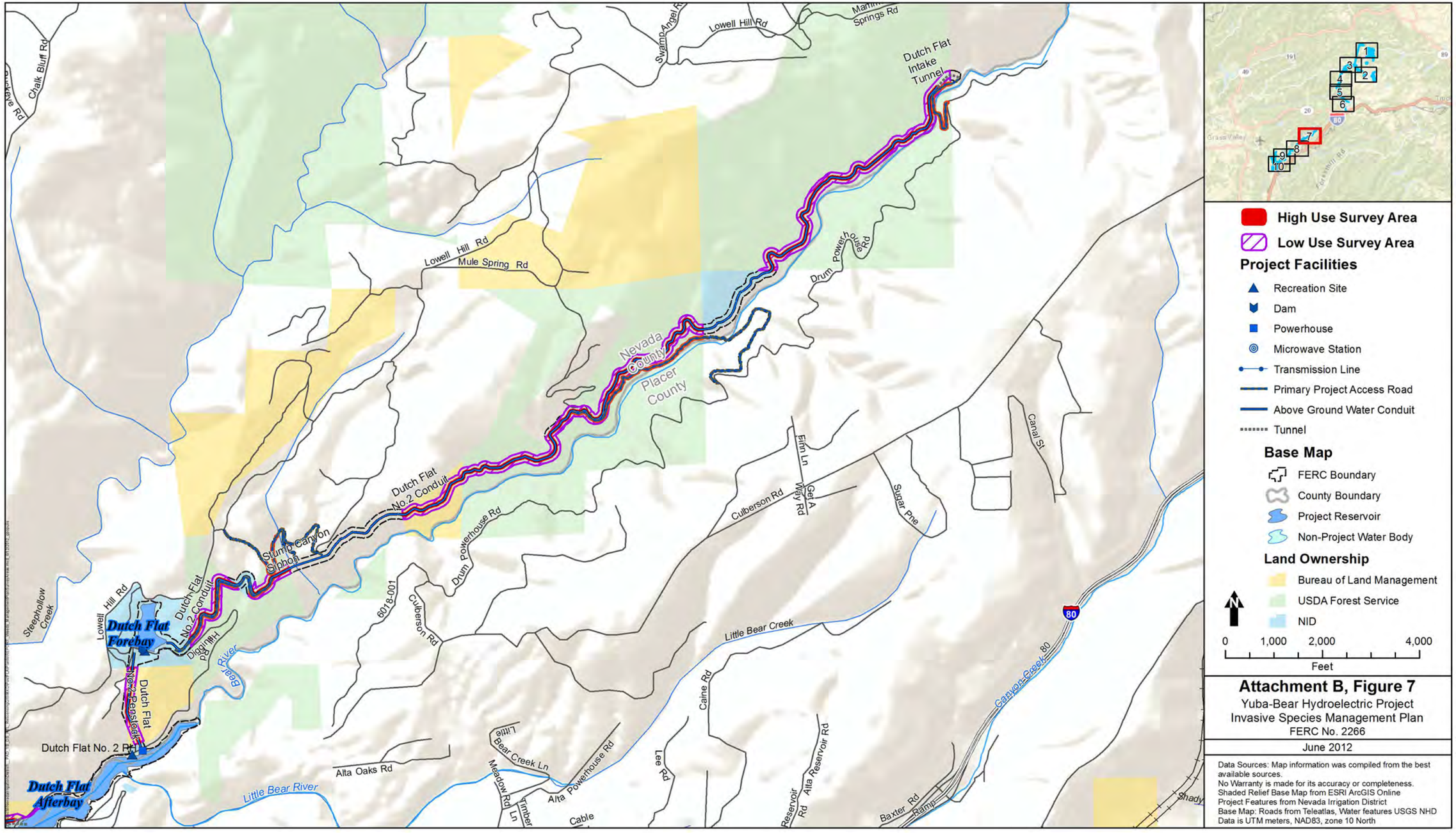


Attachment B, Figure 5
Yuba-Bear Hydroelectric Project
Invasive Species Management Plan
FERC No. 2266

June 2012

Data Sources: Map information was compiled from the best available sources.
No Warranty is made for its accuracy or completeness.
Shaded Relief Base Map from ESRI ArcGIS Online
Project Features from Nevada Irrigation District
Base Map: Roads from Teleatlas, Water features USGS NHD
Data is UTM meters, NAD83, zone 10 North

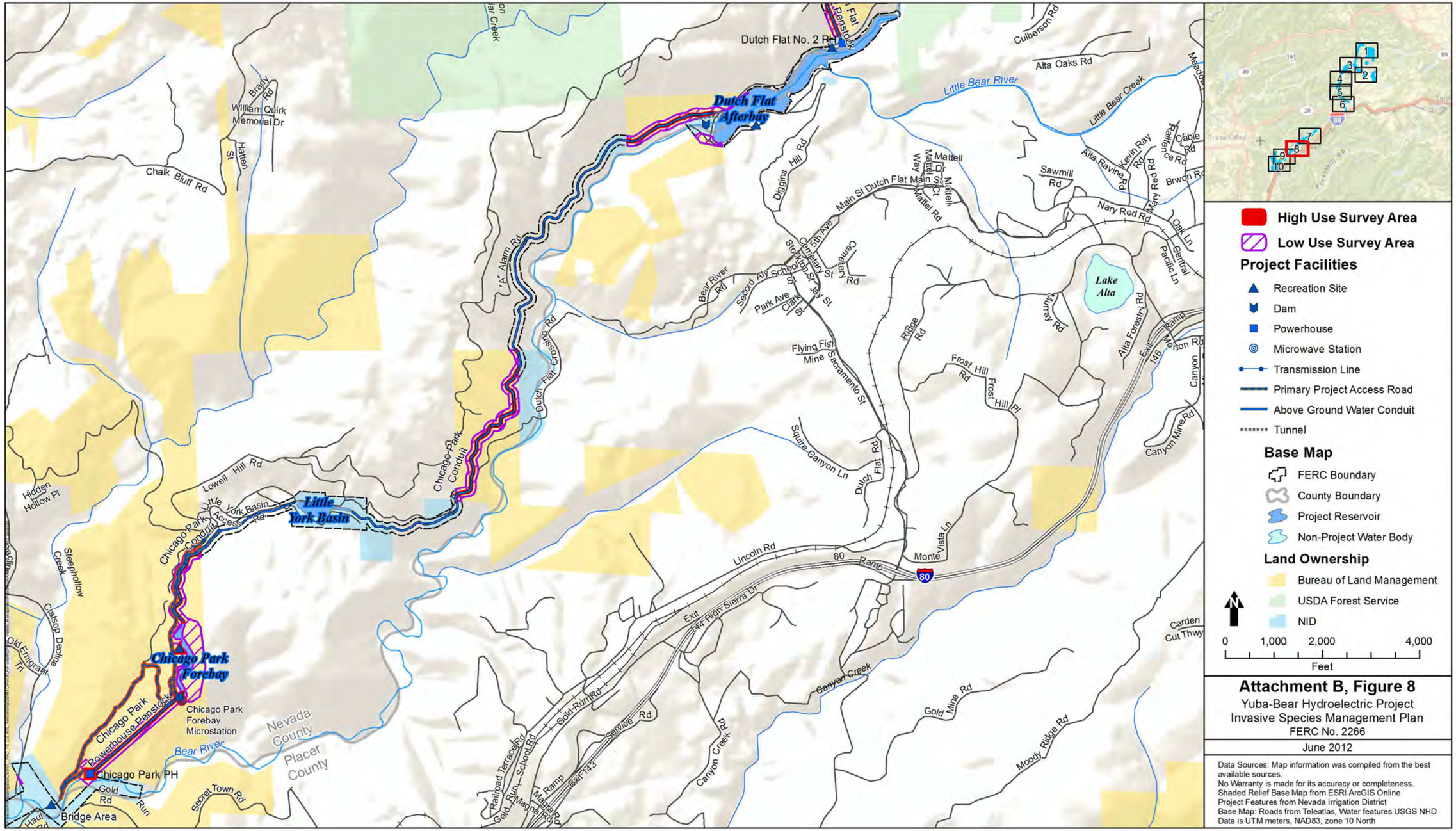




Attachment B, Figure 7
Yuba-Bear Hydroelectric Project
Invasive Species Management Plan
FERC No. 2266

June 2012

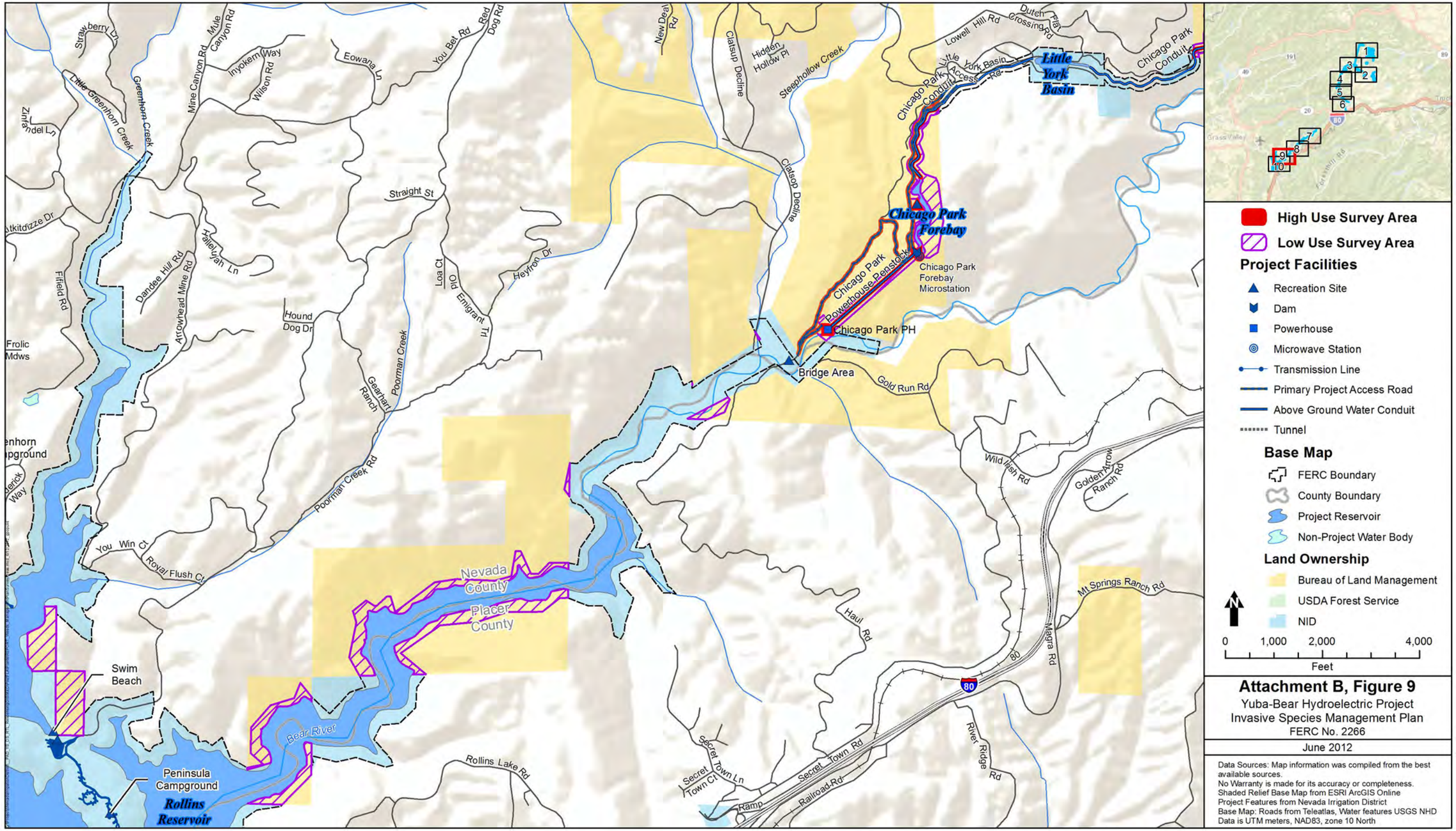
Data Sources: Map information was compiled from the best available sources.
No Warranty is made for its accuracy or completeness.
Shaded Relief Base Map from ESRI ArcGIS Online
Project Features from Nevada Irrigation District
Base Map: Roads from Teleatlas, Water features USGS NHD
Data is UTM meters, NAD83, zone 10 North



Attachment B, Figure 8
Yuba-Bear Hydroelectric Project
Invasive Species Management Plan
FERC No. 2266

June 2012

Data Sources: Map information was compiled from the best available sources.
No Warranty is made for its accuracy or completeness.
Shaded Relief Base Map from ESRI ArcGIS Online
Project Features from Nevada Irrigation District
Base Map: Roads from Teleatlas, Water features USGS NHD
Data is UTM meters, NAD83, zone 10 North

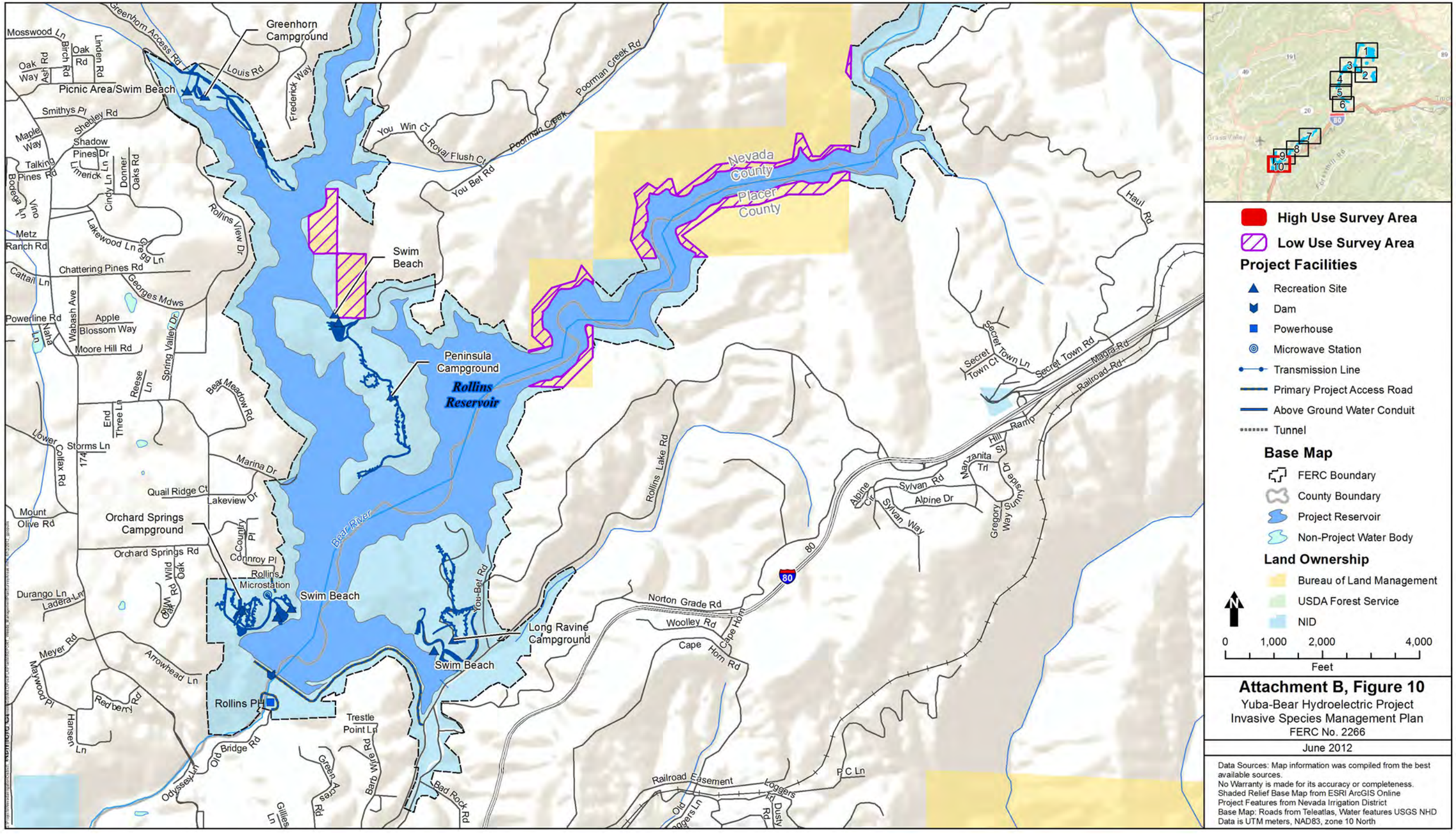


Attachment B, Figure 9

Yuba-Bear Hydroelectric Project
Invasive Species Management Plan
FERC No. 2266

June 2012

Data Sources: Map information was compiled from the best available sources.
No Warranty is made for its accuracy or completeness.
Shaded Relief Base Map from ESRI ArcGIS Online
Project Features from Nevada Irrigation District
Base Map: Roads from Teleatlas, Water features USGS NHD
Data is UTM meters, NAD83, zone 10 North



Attachment B, Figure 10
Yuba-Bear Hydroelectric Project
Invasive Species Management Plan
FERC No. 2266

June 2012

Data Sources: Map information was compiled from the best available sources.
No Warranty is made for its accuracy or completeness.
Shaded Relief Base Map from ESRI ArcGIS Online
Project Features from Nevada Irrigation District
Base Map: Roads from Teleatlas, Water features USGS NHD
Data is UTM meters, NAD83, zone 10 North

Application for a New License
Major Project – Existing Dam

Amended Vegetation Management Plan

Yuba-Bear Hydroelectric Project
FERC Project No. 2266-096

Prepared by:
Nevada Irrigation District
1036 West Main Street
Grass Valley, CA 95945
www.nidwater.com

June 2012

Table of Contents

List of Tables

List of Figures

List of Attachments

GLOSSARY - DEFINITIONS OF TERMS, ACRONYMS AND ABBREVIATIONS

For the purpose of this Plan, the following definitions apply:

Term	Definition
ac	acre
BLM	United States Department of the Interior, Bureau of Land Management
BMP	Best Management Practices
CFR	Code of Federal Regulations
EPA	United States Environmental Protection Agency
FERC	Federal Energy Regulatory Commission
FLA	Final License application
Forest Service	United States Department of Agriculture, Forest Service
FSM	Forest Service manual
ft	feet
GIS	Geographic Information System
kV	kilovolt
LOP	limited operating period
mi	mile
NFS	National Forest System
NID or Licensee	Nevada Irrigation District
NNIP	non-native invasive plant
O&M	operation and maintenance
oz	ounce
PAC	Protected Activity Center
Plan	Vegetation Management Plan
Project	Yuba-Bear Hydroelectric Project, FERC Project No. 2266
TNF	Tahoe National Forest

Page Left Blank

SECTION 1

INTRODUCTION

1.1 Background

In April 2011, Nevada Irrigation District (NID or Licensee), pursuant to Sections (§§) 5.17 and 5.18 of Title 18 of the Code of Federal Regulations (CFR), filed an application for a new license with the Federal Energy Regulatory Commission (FERC) for NID's Yuba-Bear Hydroelectric Project (Project), FERC Project No. 2266. The initial license for the Project was issued by the Federal Power Commission, FERC's predecessor, to NID on June 24, 1963, effective on May 1, 1963, for a term ending April 30, 2013.

The Project is a water supply/power project located in the Middle Yuba River, Canyon Creek, Fall Creek, Rucker Creek, and Bear River basins in Nevada, Placer, and Sierra counties, California. The Project consists of four developments – Bowman, Dutch Flat, Chicago Park and Rollins – that collectively include nine on-stream reservoirs; three off-stream impoundments; two diversion dams; four powerhouses; one overhead, 60 kilovolt (kV) transmission line; and various water conduits and appurtenant facilities and structures, recreation facilities, and Primary Project roads.[1]

Some of the area within the FERC Project Boundary, as shown in Exhibit G of Licensee's application for a new license, occupies federally owned National Forest System (NFS) land managed by the United States Department of Agriculture, Forest Service (Forest Service) as part of the Tahoe National Forest (TNF), and some is federally owned land administered by the United States Department of the Interior, Bureau of Land Management (BLM) in conformance with the Sierra Resource Management Plan (BLM 2008).

Table 1.1-1 summarizes land ownership within the proposed Yuba-Bear Hydroelectric Project.

Table 1.1-1. Summary of land ownership within the proposed Yuba-Bear Hydroelectric FERC Project Boundary by Project Development.[1]

Development	Forest Service (ac)	BLM (ac)	NID (ac)	Other Private (ac)	Total (ac)	Percent
PROPOSED FERC PROJECT BOUNDARY						
Bowman	1,202.2	--	2,313.9	112.8	3,628.9	60%
Dutch Flat	205.1	13.9	53.1	89.4	383.7	6%
Chicago Park	--	77.0	48.1	70.3	195.4	3%
Rollins	--	140.2	1,690.6	7.3	1,838.1	30%
Bowman-Spaulding Transmission Line	28.2	--	1.9	28.2	58.3	1%
Total	**1,435.5**	**231.1**	**4,107.7**	**308.0**	**6,082.3**	**100%**
Percent	**24%**	**4%**	**67%**	**5%**	**100%**	**--**

[1] The Bowman-Spaulding Transmission Line, part of the Bowman Development, is shown separately because it is a linear facility.
ac = acre

[1] Primary Project roads are defined and listed in the Transportation Management Plan (NID 2011).

1.2 Purpose of the Vegetation Management Plan

This Vegetation Management Plan (Plan) is intended to provide guidance for the management of vegetation on NFS land managed by the Forest Service and federally owned land managed by the BLM within FERC's existing Project Boundary for the Project. However, the General Vegetation Management section applies to all lands on the Project, unless otherwise stated in Section 3 of this Plan.

Any measures undertaken with respect to vegetation management will be coordinated by the Licensee with other resource efforts and will, in particular, take into account the need to prevent disturbance to any known cultural resources and to take appropriate actions in the event of unanticipated discovery of cultural materials.

1.3 Goals and Objectives of the Vegetation Management Plan

The goal of the Plan is threefold: the restoration of native vegetation in areas disturbed by Project operation and maintenance (O&M) through revegetation; the conduction of necessary and required Project-related vegetation management and hazard reduction activities, according to Best Management Practices (BMP); and the protection of sensitive areas.

The objective of the Plan is to provide the guidance necessary to meet Plan goals.

1.4 Contents of the Vegetation Management Plan

This Plan includes the following:

- Section 1. Introduction. This section includes introductory information, including the purpose and goal of the Plan.
- Section 2. Revegetation. This section includes information on revegetation, including selecting sites appropriate for revegetation, planning and implementing revegetation projects, monitoring revegetation sites and consulting with the Forest Service and BLM on revegetation projects.
- Section 3. General Vegetation Management. This section includes a description of general vegetation management at Project facilities on all lands.
- Section 4. Sensitive Area Protections. This section includes information on avoidance and protection measures for sensitive areas.
- Section 5. Consultation and Reporting. This sections details consultation and other reporting on vegetation management between Licensee, TNF and BLM.
- Section 6. References Cited. This section provides a list of the references cited in the Plan.

SECTION 2

REVEGETATION

Revegetation is the process of reestablishing vegetation cover in disturbed areas and a standard component of construction, erosion control and site restoration. The main functions of revegetation are to conserve native plant resources, reduce loss of soil to erosion and restore wildlife habitat. This section includes the following components:

- Areas subject to revegetation[2]
- Methods of evaluating sites for revegetation
- Planning revegetation projects
- Monitoring revegetation projects to determine success
- Consulting with the Forest Service and BLM on the planning and status of revegetation projects.

2.1 Areas Subject to Revegetation

NID will evaluate areas on a site-by-site basis to determine if revegetation is necessary or appropriate. In general, areas subject to revegetation include, but are not limited to:

- Areas over 0.5 acre (ac) treated for non-native invasive plants (NNIP)
- Construction sites and other areas subject to ground disturbance[3]
- Sites subject to Project O&M, including improvements, erosion control and effects to vegetated areas that will not be paved or covered

Sites that are subject to continual disturbance (for example, berm roads) or where bare ground needs to be maintained (e.g., firebreak clearances around transmission poles) will not be subject to revegetation under this Plan. Sites subject to disturbances that are not Project-related will also not be revegetated. Legacy sites (i.e., areas that are not deliberately kept unvegetated, but have not naturally revegetated prior to license issuance) will not be subject to revegetation.

2.2 Evaluating Sites for Revegetation

If a site is subject to revegetation, it will immediately be further assessed to determine size, percent vegetation cover, erosion potential and current plant community onsite and in the surrounding area. Once this assessment is completed, the following criteria will be used to determine if revegetation should occur:

[2] All areas discussed in the Plan as subject to revegetation would be new, not currently existing, areas.

[3] Ground-disturbing activities include excavating, digging, trenching, drilling, tunneling, auguring, backfilling, blasting, topsoil stripping, land leveling, blading and grading.

- Native vegetation cover will be less than or equal to 30 percent of the surface areas of the site, when compared to similar sites on adjacent undisturbed areas.
- Erosion is evident or there is a high potential for erosion.
- There is little possibility of natural revegetation from the surrounding plant communities, due to:
  - Slow rate of propagation and growth of nearby native species
  - Little or no evidence of successful reproduction of nearby native species
  - Low composition or cover of native species in the area
  - High percentage of non-native, invasive species in the area
  - Surrounding sites disturbed
  - Surrounding sites with different native plants composition than site to be revegetated
  - Soil compaction

If one or more of the criteria are met, then a plan for revegetating the site will be developed.

If none of the criteria are met, then immediate revegetation at the site will be deemed unnecessary. Instead, the site will be monitored annually by Licensee for three years for percent vegetation cover and vigor, invasive weed presence and evidence of erosion. If after three years, the site has reached the following revegetation objectives, then the site will be considered successfully revegetated and no further actions will be initiated. If the site has not reached these objectives, then remedial actions will be developed and implemented. Revegetation objectives include:

- Native vegetation cover comprises more than 60 percent of the surface area of the site, when compared to similar sites on the adjacent undisturbed area.
- No target NNIP are present, except under the following circumstance — if the revegetation is within a known infestation, the following guidelines apply:
  - If the area adjacent to the project site contains less than 25 percent cover of undesirable species, revegetation will be considered acceptable when the cover of undesirable species on the project site does not exceed 5 percent.
  - If the area adjacent to the project site contains 25 to 50 percent cover of undesirable species, revegetation will be considered acceptable when the cover of undesirable species on the project site does not exceed 10 percent.
  - If the area adjacent to the project site contains more than 50 percent cover of undesirable species, revegetation will be considered acceptable when the cover of undesirable species on the project site does not exceed 25 percent.
- There is no evidence of significant erosion: rills are less than 3 inches deep; and deeper or excessive rilling is not observed.
- Desirable vegetation appears vigorous and self-sustaining. The plants have the opportunity to complete their annual life cycles. This objective will be evaluated by observing the size,

color, and vigor of the plants, and noting the presence of new growth shoots, flowers, seeds, litter build-up, and seedlings.

- Adequate diverse vegetation is present**.** The site contains a mixture of native species similar to the adjacent undisturbed area.

2.3 Revegetation Project Planning

Immediately after (within a month, if feasible) revegetation of a site has been deemed necessary, and prior to ground disturbance, a revegetation plan will be developed. For planned projects, revegetation needs will be assessed as best as possible prior to implementation of the project, subject to changes in and/or previously unknown conditions. The first step of the planning process will be a second, more complete, site assessment, which will include:

- General site conditions, including slope, terrain, soils, land use, access and proximity to water
- Proximity to target NNIP occurrences
- Vegetation community specifics, including native species composition, richness and density
- Site complexity, including the variety of landforms

The second site assessment will be used to develop the revegetation plan.

For sites smaller than 0.5 ac, Licensee will develop a list of revegetation actions, including species to be planted, method(s) of revegetation and an implementation schedule. The list of actions will be submitted to the Forest Service and/or the BLM for approval within 60 days of the submittal. If approved, revegetation will proceed; otherwise, the actions will be revised and resubmitted for approval.

For sites larger than 0.5 ac, a full Revegetation Plan will be developed and submitted to the Forest Service and/or BLM for approval. The plan will include site-specific desired conditions,[4] species to be planted, method(s) for revegetation, site design, soil treatment, success criteria, a monitoring plan, weed management strategies, a schedule of activities and remedial actions. The Forest Service and/or BLM will have 60 days to review the plan and comment. Licensee will address comments and submit a final plan to the Forest Service and/or BLM for approval and then implement the Revegetation Plan. Where possible, the Revegetation Plan will be developed and submitted to the Forest Service and/or BLM (as appropriate) 30 days prior to the Annual Consultation Meeting.

2.4 Revegetation Methods

Revegetation will occur as soon as possible after ground disturbance, during the appropriate season. Revegetation will begin with site preparation, including the breaking up of soils to reduce compaction and ease seeding and planting. At sites where compaction may be a problem,

[4] The Forest Service already has desired condition statements for NFS land, which will be followed.

topsoil (the upper 12 inches of soil, when present) may be removed and salvaged in such a manner as to keep it usable for replanting. Topsoil will be stored in a manner that keeps the soil biota alive and will be promptly seeded, if it is to remain in place for longer than one month, to maintain soil microbe health and prevent NNIP. In sites that are being seeded, seeding will take place a few days after topsoil is replaced. At some sites, amendments, such as compost or fertilizer, may need to be added to the soil upon approval by the Forest Service or BLM.

NID will use seed mixes on NFS and BLM lands that contain only native plant species that meet Forest Service and/or BLM standards. For small sites, NID will use a standard native and certified weed-free seed mix, which will be annually reviewed by the Forest Service and BLM. The seed mixture should be a commercially available product.

Standard or customized commercially-available seed mixes will be used on larger sites, as detailed in the site-specific Revegetation Plans. A mixture of seeding techniques may be used and will be spelled out in the individual Revegetation Plans or actions. Seeding rates will be determined based on pure live seed methods and in a mixture to improve seeding success. Seeds should be covered not more than three times the thickness of the seed. Sites will be covered with certified weed-free mulch after seeding, and mulch will cover the surface through germination.

Larger sites will typically be replanted with a mixture of native trees, shrubs and forbs. For some sites, it may be possible to use salvaged plants, which will be the preferred method for replanting. Where salvage is not possible, commercially-available native plants will be used. Species and planting decisions will be spelled out in Revegetation Plans. All plant materials will be handled as little as possible and protective features for planted vegetation will be installed where necessary.

Restoration and seeding of disturbed areas including topsoil piles and berms, will be completed within 30-60 days following completion of construction or ground-disturbing activities, or as soon as feasibly possible. Licensee will make a best faith effort to complete restoration and seeding as soon as possible.

2.5 Revegetation Monitoring

Revegetation sites will be periodically monitored to evaluate their success. When all site criteria are met, a revegetation project will be deemed successful. A revegetation site will be monitored annually, for up to three years, until criteria from developed actions or Revegetation Plans are met and attained for a year. If, after three years, success criteria are not met, remedial measures will be implemented. An additional two years of monitoring will follow the implementation of remedial measures. If, at the end of an additional two years of monitoring, success criteria are still not met, the site will be declared problematic and strategies to deal with the site will be developed in consultation with the Forest Service and/or BLM.

Monitoring of revegetation projects may include vegetation cover, species richness[5], survivorship and native and invasive species counts.

2.6 Consultation

Licensee will report to the Forest Service and BLM on the status of revegetation projects. Revegetation monitoring reports will be prepared and submitted to the Forest Service or BLM, as appropriate, 30 days prior to the Annual Consultation Meeting in those years when monitoring was conducted. Comments on the revegetation monitoring report will be discussed at the Annual Consultation Meeting.

[5] The number of species represented on the site.

Page Left Blank

SECTION 3

GENERAL VEGETATION MANAGEMENT

Licensee conducts a variety of general vegetation management activities, often driven by regulatory requirements. These measures ensure safe and continued Project operations. General vegetation management activities are enacted following BMPs, while protecting sensitive resources and preventing/minimizing the spread of NNIP. General vegetation management includes facility and transmission line management, road maintenance, hazard tree removal and fuel load reduction measures.

3.1 Facility Management

Licensee will routinely clear vegetation in the immediate vicinity of Project structures, including powerhouses, canals, flumes, recreation facilities and on the rock- and earth-filled dams. Clearing will be performed by mechanical means (e.g., chain saws and weed whackers), and occur only in those areas needed by Licensee to maintain the structure. On privately owned lands, vegetation control at facilities will use both mechanical and chemical methods. California State law shall be followed in regards to clearing distance to all structures. Licensee will not use ground-disturbing equipment for vegetation clearing.

In general terms, once a site-specific integrated non-native invasive plant treatment plan is in place, the Licensee will implement the following guidelines when the use of pesticides on federally managed lands is proposed. Licensee will acquire the necessary permission from the federal agency prior to applying pesticides on federally managed lands. When permission is obtained, pesticide use will be in compliance with agency standards. On federal lands, Licensee shall use only those materials registered by the United States Environmental Protection Agency (EPA) for the specific purpose planned. Only those herbicides approved for use on BLM lands will be applied to BLM lands. In addition, a Pesticide Use Proposal must be approved by the BLM prior to the use of pesticides on BLM lands. Licensee shall strictly follow label instructions in the preparation and application of pesticides and disposal of excess materials and containers. Any pesticide application that is deemed necessary within areas with special resources will likely have additional requirements. For example, any pesticide use that is deemed necessary on federal lands within 500 feet (ft) of known locations of California red-legged frog (*Rana draytonii*), Sierra Nevada yellow-legged frog (*Rana sierrae*), or foothill yellow-legged frog (*Rana boylii*) will be designed to avoid adverse effects to individuals and their habitats. There are no known locations of these species within 500 ft of any pesticide application. The Licensee will be responsible for conducting appropriate monitoring of these populations as determined by the federal agency.

On privately owned lands within the FERC Project Boundary, pesticides will only be applied by a licensed vegetation management specialist in areas of the Project, with the exception of NFS and BLM land (discussed below). The Licensee will typically apply post-emergent herbicides (Accord, Rodeo and Garlon 3A) once in early summer at Project facilities located on private lands in both upper and lower elevations. In late fall, the Licensee will apply pre-emergent herbicides (Oust and Telar) to Project facilities located on private lands located in the upper

elevations (>5,000 ft). During January and February, Licensee will apply pre-emergent herbicides (Oust and Telar) to Project facilities located on private lands in the lower elevations (<5,000 ft). Herbicide applications usually occur on downstream dam faces, at the toe and groins of dams and in the immediate vicinity of Project facilities. No herbicides will be used in water conduits. Algaecides will not be used at Project facilities. Refer to Table 3.1-1.

Table 3.1-1. Location, types and amounts of herbicides and pesticides typically to be applied annually on non-federal lands by Nevada Irrigation District for the Yuba-Bear Hydroelectric Project.

Facility Where Applied	Herbicide							
	Accord	Garlon 3A	Habitat	Milestone	Oust	Roundup	Telar	Vista
	Liquid	Liquid	Liquid	Liquid	Solid	Liquid	Solid	Liquid
Jackson Meadows Lake Dam	32 oz	--	--	--	--	--	--	--
Jackson Lake Dam	64 oz	32 oz	--	3 oz	--	--	--	--
Sawmill Lake Dam	--	--	--	--	--	--	--	--
Faucherie Lake Dam	--	--	--	--	--	--	--	--
Bowman Lake Dam	32 oz	8 oz	--	--	--	--	--	--
Adjacent to Bowman-Spaulding Canal	256 oz	256 oz	--	--	15 oz	3 oz	7.5 oz	--
Dutch Flat No. 2 Flume	--	128 oz	--	--	9 oz	384 oz	4.5 oz	--
Dutch Flat No. 2 Forebay Dam and Penstock	128 oz	64 oz	--	--	6 oz	48 oz	3 oz	32 oz
Dutch Flat No. 2 Powerhouse	--	--	--	--	2 oz	16 oz	0.75 oz	--
Dutch Flat AfterBay Dam	32 oz	16 oz	16 oz	--	2 oz	64 oz	0.75 oz	--
Chicago Park Conduit		128 oz	--	--	12 oz	384 oz	6 oz	128 oz
Chicago Park Forebay Dam	32 oz	32 oz	16 oz	--	3 oz	64 oz	1.5 oz	--
Chicago Park Penstock and Powerhouse	64 oz	32 oz	16 oz	--	1 oz	--	0.25 oz	--
Rollins Lake Dam	--	64oz	--	--	3 oz	256 oz	1 oz	32 oz
Rollins Powerhouse and Microwave Site	--	8 oz	--	--	3 oz	64 oz	0.1 oz	--

oz = ounce

The only known Project facility on NFS lands where post-emergent herbicides will be applied is Jackson Meadows Dam. Licensee's specialist will apply a rodenticide (diphacinone) on Project dams, as needed, to control rodents. Rodent control is a requirement of both FERC and California's Division of Safety of Dams. There will typically be one application once rodent activity is noticed by the Licensee.

Proposed measure YB-GEN 7[6] deals with herbicide and pesticide use on NFS and BLM lands. Under YB-GEN7, Licensee shall, beginning no later than 90 days of license issuance, not use pesticides or herbicides on NFS land or on public land administered by BLM or in areas affecting NFS land or public land administered by BLM to control undesirable woody and herbaceous vegetation, aquatic plants, insects, rodents, trash fish, etc., without the prior written approval of the Forest Service or BLM, as appropriate. During the Annual Consultation Meeting described in Condition YB-GEN1,[7] Licensee shall submit a request for approval of planned uses of pesticides or herbicides on NFS land or public land administered by BLM, as appropriate, for

[6] All proposed measures for the Project are detailed in the Final License Application (FLA) Exhibit E, Appendix E3, and the proposed measure for herbicides and pesticides is specifically discussed in Section E3.5.3.

[7] YB-GEN1 is detailed in FLA Exhibit E, Appendix E3 in Section E3.1.1.

the upcoming year. Licensee shall provide information essential for review including specific locations and timeframes for application as well as analysis necessary to ensure compliance with the Tahoe National Forest Land and Resource Management Plan, BLM Sierra Resource Management Plan, and any amendments or additional Forest Service or BLM requirements. Exceptions to this schedule may be allowed only when unexpected outbreaks of pests require control measures that were not anticipated at the time the report was submitted. In such an instance, an emergency request to the Forest Service and approval by the Forest Service may be made.

3.2 Recreation Site Management

At Project recreation sites, vegetation management will be conducted with the goals of tree stand improvement, view enhancement and removal of hazard trees. The primary objective of the prescription is to create and maintain a natural environment (Forest Service Manual [FSM] 2331.4). Vegetative planting will be done when needed for screening, to cover construction scars, provide shade, increase attractiveness, control erosion and to minimize noise (FSM 2333.35).

At all Project-related recreation sites, vegetation management activities include the removal of vegetation, hazardous branches, and hazard trees as identified by Licensee planners and/or Foresters to facilitate recreation activities. In early spring, Foresters will survey campground boundaries, parking lots and immediate access routes to recreation areas for hazard trees and hazardous branches. Identified trees will be removed before the campgrounds are occupied by the public. The slash will be chipped, and the trunk either hauled away or cut into rounds no larger than 8 inches in diameter and 18 inches long for use by campers. Larger rounds will be removed from the recreation site. If feasible, hazard tree clearing will be conducted in the late fall to remove the bulk of the trees ahead of the spring camping rush. Stumps remaining within developed campgrounds shall be no higher than 6 inches.

3.3 Transmission Line Management

Licensee will control vegetation within the 9-mile (mi)-long, 25-35 ft wide, 60 kV Bowman-Spaulding Transmission Line, as needed. This control will include inspections every 2-4 years to determine the need for vegetation removal. Any larger, non-hazard trees that do not require being felled, but which contain hazardous limbs that need removal, will have these limbs removed by pruning. Limbs removed from larger trees must be cut no shorter than 1 inch from the bole to avoid tree damage while avoiding projecting branch staubs. Cut limbs will be disposed of as described at the Annual Consultation Meeting based on consultation with and approval of the Forest Service or BLM. Small trees and brush that may reach the lines will routinely be removed by chainsaw or other mechanical means. Method of disposal of cut small trees and brush will be based on consultation with and approval of the Forest Service or BLM, as described at the Annual Consultation Meeting.

Licensee currently does not maintain any roads that travel in parallel to the line and has no plans to construct roads.

Any necessary cutting and removal of commercial size trees on federal lands outside the 35-foot clearance between the vegetation and conductor, or within falling distance of the line, will require a separate National Environmental Policy Act analysis. The trim zone and the hazard tree zone are variable in width depending primarily on the height of trees adjacent to the distribution line, the topography, and the sway of the conductors at mid span as determined by the tension and length of the span. However, the distance from the line is estimated to be about 100 ft on either side.

3.4 Hazard Tree Management

In emergencies, Licensee will be required to remove trees that are dead or dying and have a potential to fall on Project structures, such as recreation facilities, powerhouses, switchyards, flumes, canals and transmission lines. For planned tree removal that is not an extreme emergency, Licensee shall provide information to the Forest Service, BLM, CDFG, and the State Water Resources Control Board during the Annual Consultation Meeting. When the removal of the hazard trees is required inside the FERC Project Boundary, the landowner (e.g., Forest Service for NFS land, BLM on BLM land, and local land owner for private land) will be contacted to obtain permission to have the tree removed and agree on any provisions of the removal. On NFS or BLM land, Licensee will visit each tree with Forest Service or BLM staff to determine if the tree should be felled and, if so, how and any necessary follow-up measures. Removal shall be approved by the Forest Service or BLM. Should any investigations be determined necessary by the Forest Service or BLM (e.g., special-status plant and cultural surveys), Licensee's qualified professionals will perform them prior to tree removal.[8] If sensitive resources are discovered, the guidelines for sensitive area protections, as laid out in Section 4 of this Plan, will be followed. The hazard tree will be removed, and the cut vegetation will be disposed of in a manner agreed to by the land owner. Hazard trees are generally removed in the fall, except in emergency situations. If trees felled inside the FERC Project Boundary also have the potential to affect sensitive resources just outside the boundary, all of the measures in Section 4 of the Plan will be applied to protect those resources.

Licensee's emergency work is exempt from the restrictions imposed by the limited operating periods (LOP). However, the Licensee will consult with Forest Service, BLM, and CDFG to ensure that routine management of hazard trees typically occurs outside LOPs for special-status species. Where it is not possible to implement the restrictions, Licensee will annually report the location and kinds of activities that were conducted within sensitive resource areas.

3.5 Fire Prevention

Licensee has developed a Fire Prevention and Response Plan for approval by the Forest Service and the BLM.

[8] On federal lands, qualified professionals must be approved by the Forest Service or BLM, as appropriate.

3.6 Fuel Treatment

Fuel treatment disposal methods may include chipping, off-site disposal, or lopping and scattering (with Forest Service or BLM approval).[9] These fuel treatment methods are applicable to the Licensee's annual, routine vegetation management within the Project area.

Larger fuel treatment projects that include merchantable timber on NFS or BLM lands shall be handled separately under Timber Sale Contract with specific provisions for fuel treatments. Treatments may include shaded fuel breaks, limbing, brush trimming, selective clearing around the perimeter of the site, and other agreed upon methods. Fuel treatments will be designed according to the size and capacity of the facility where vegetation management is planned.

3.7 Road Maintenance

Vegetation that occurs along roads frequently grows into those roads which will require brush-cutting and/or mowing of grasses and forbs. When roadside brush cutting and/or mowing is needed, Licensee will ensure that equipment used to do the cutting/mowing is free of vegetative material and soil before it is brought to the Project area. Roadside vegetation that is free of target NNIP will be cut/mowed first to avoid spreading those undesired plants. Roadside vegetation that contains target NNIP will be cut last, and equipment will be washed after cutting/mowing the NNIP and before it is used in another location to reduce and/or prevent the spread of those NNIP. When areas of dense shrubs are cut, the cut shrubs will be chipped on site. No NNIP will be chipped, for example Scotch broom (*Cytisus scoparius*). Because most target NNIP grow best in full to partial sun, as much roadside shade as possible will be retained as a cultural preventative measure to reduce the vigor of existing target NNIP infestations and/or reduce the risk of establishment of other NNIP.

When mulch is needed for erosion control during road maintenance activities, it will be weed free. When mulch is needed to prevent weed establishment along roads, it will have high void spaces (long-fiber mulch), low water-holding capacity and be relatively deep (dependent on the type of weed, a depth of 2-4 inches). Material from right-of-way clearing (road-side brushing) can be shredded (to create long-fiber mulch) but woody NNIP species, such as Scotch broom will not be shredded and used as mulch.

[9] Currently, NID lops and scatters during fuel and hazard tree treatment per Forest Service request.

Page Left Blank

SECTION 4

SENSITIVE AREA PROTECTIONS

Licensee will use multiple measures to protect sensitive areas during vegetation management, to ensure that adverse effects are avoided or minimized. For the purpose of the Plan, a sensitive area is considered:

- Areas with known cultural resources
- Areas with known target NNIP occurrences
- Areas with known special-status species resources
- Areas of sensitive habitat, such as riparian zones and wetlands
- Other pre-determined areas with significant sensitive resources

A combination of approaches will be used to avoid and minimize impacts to these sensitive resources, including:

- Annual employee training for staff (employees and contractors), which will include information on recognition of special-status species, the location of existing occurrences of sensitive resources and areas to be avoided
- Flagging of sensitive areas with a site and resource specific buffer prior to any vegetation management activities, including target NNIP
- Emphasis on manual activities only, where feasible, in sensitive areas
- Following LOPs in areas with sensitive wildlife species
- Using all BMPs in sensitive areas

If any previously undocumented sensitive resources are located during vegetation management planning or implementation, NID will notify the proper resource agencies promptly.

4.1 Special-status Plant Surveys

Within one year following license issuance and then once every 10 years, Licensee will conduct surveys on federal lands for special-status plants at Project facilities, including Primary Project roads and recreation areas, within the FERC Project Boundary (Attachment A). Surveys will be discontinued for any plant species that is no longer listed as threatened, endangered, protected, sensitive, or watchlist. New plant species may be added as a result of updates to the list of federally threatened, endangered or protected species; State threatened or endangered species; BLM sensitive plant species or Forest Service sensitive and watchlist species. Surveys shall be conducted according to the most currently accepted protocols. Surveyors will record data required for completion of California Natural Diversity Database forms, including special-status plant species Global Positioning System-determined location, relative abundance, phenology,

habitat description, habitat condition and target NNIP presence. The collected data will be added to the Geographic Information System (GIS) database.

4.2 Special-Status Wildlife

LOPs will be applied, as appropriate, to protect special-status wildlife, during non-routine, non-emergency activities that involve the use of heavy equipment, loud noises or habitat alteration. Non-routine Project construction activities (e.g., building new roads, dams, powerhouses, etc) that require pneumatic or heavy equipment performed by NID and its contractors will not occur within the buffer while the LOP is in effect. If it is determined that the nest corresponding to the buffer is unoccupied, NID may request that the LOP be waived for that particular year.

Work exempt from the restrictions imposed by the LOP may include emergency work that includes, but is not limited to, canal breach, dam failure, employee injury, powerhouse goes off-line, repairs to facilities caused by storms, fire, etc. However, NID will notify the appropriate agency (depending on jurisdiction) within 48 hours of commencement of emergency work. Other work exempt from the restrictions imposed by the LOP includes routine Project O&M. Routine O&M includes, but is not limited to, use of snow-cats, helicopters and vehicles for access; facilities inspections; cleaning of trash racks; implementation of vegetation management practices.

Unless otherwise approved by the Forest Service or BLM during consultation between the Forest Service or BLM and Licensee, LOPs will be implemented as follows:

For California spotted owl (*Strix occidentalis occidentalis*): Maintain a LOP within a buffer that includes the 300-ac Protected Activity Centers (PAC), plus an additional 0.25-mi area around the PAC, during the breeding season (March 1 through August 15), unless surveys confirm that California spotted owls are not nesting. Prior to implementing activities within or adjacent to California spotted owl PACs where the location of the nest site or activity center is uncertain, Licensee will conduct surveys to establish or confirm the location of the nest or activity center. Where surveys have not been conducted, the LOP will be extended to cover the unsurveyed suitable habitat.

For northern goshawk (*Accipiter gentilis*): Maintain a LOP, prohibiting vegetation treatments within a 1/4 mi of the nest site during the breeding season (February 15 to September 15), unless protocol surveys confirm that goshawks are not nesting. If the nest stand within a PAC is unknown, either apply to LOP to a 1/4-mi area surrounding the PAC or survey to determine the nest location. Where surveys have not been conducted, the LOP will be extended to cover the unsurveyed suitable nesting habitat.

For great gray owl (*Strix nebulosa*): Prohibit vegetation treatments and road construction within 0.25 mi of an active great gray owl nest stand, during the nesting period (typically March 1 to August 15) (USDA Forest Service, Sierra Nevada Forest Plan Amendment Record of Decision, Standard and Guide No. 83, p. 61). Protocol surveys will be used to determine if great gray owl nests are present and active within appropriate nesting habitat.

Any pesticide use that is deemed necessary to use on NFS lands within 500 ft of known locations of California red-legged frog (*Rana draytonii*), Sierra Nevada yellow-legged frog (*Rana sierrae*), or foothill yellow-legged frog (*Rana boylii*) will be designed to avoid adverse effects to individuals and their habitats. The Licensee will be responsible for conducting appropriate monitoring of these populations, as determined by the Forest Service, if pesticides need to be used within 500 ft of a known occurrence of a California red-legged frog, Sierra Nevada yellow-legged frog and foothill yellow-legged frog.

Page Left Blank

SECTION 5

CONSULTATION AND REPORTING

Over the term of the new license, additional consultation may occur as necessary to ensure that the goals and objectives of the Plan are being met and the proposed measures are implemented. Consultation activities that will be conducted during the new license terms will include an Annual Consultation Meeting and periodic reporting of vegetation management as described below.

5.1 Annual Consultation Meeting

Each year during the term of the license, NID shall arrange to meet with the Forest Service and BLM, as appropriate, for an annual meeting to discuss vegetation management activities on NFS land and public land administered by BLM within the FERC Project Boundary. The date of the meeting will be mutually agreed to by NID, Forest Service and BLM, but in general, will be held within the first 90 days of each calendar year. Beginning the second year of license implementation and thirty days prior to the Annual Consultation Meeting, the Licensee will prepare maps showing the locations of any planned activities in proximity to special-status species and other sensitive resource locations, using updated information provided to the Licensee by the Forest Service and BLM.

Table 5.1-1 provides guidelines for selected sensitive resources, the distances to be mapped to facilitate evaluation of potential Project effects, and the recommended LOPs, within which activities may disturb breeding.

Table 5.1-1. Sensitive resource guidelines.

Sensitive Resource	Distance from Proposed Activity for Mapping	Limited Operating Period
Bald eagle (*Haliaeetus leucocephalus*)	0.25 mi	January 1 to August 31
California spotted owl (*Strix occidentalis occidentalis*) activity center and Protected Activity Center (PAC)	0.25 mi	March 1 to August 15
Great gray owl (*Strix nebulosa*)	0.25 mi	March 1 to August 15
Northern goshawk (*Accipiter gentilis*) activity center and PAC	0.25 mi	February 15 to September 15
Willow flycatcher (*Empidonax traillii*)	0.25 mi	May 1 to August 15
Special-status amphibian sightings: California red-legged frog (*Rana draytonii*), Sierra Nevada yellow-legged frog (*Rana sierrae*), foothill yellow-legged frog (*Rana boylii*), Western pond turtle (*Clemmys marmorata*)	0.25 mi	Not applicable
Special-status plants	FERC Project Boundary or affected area (e.g. within tree-falling distance)	Not applicable
Cultural	FERC Project Boundary or affected area (e.g. within tree-falling distance)	Not applicable

mi = mile

At the Annual Consultation Meeting, NID shall review with the Forest Service and BLM its vegetation management activities planned for the calendar year on NFS land and public land

administered by BLM, identify any revisions needed, and make any adjustments to the Plan or schedule, as deemed appropriate.

5.2 Reporting

By September 30 of each year, Licensee will provide to the Forest Service and BLM a report of pesticide applications conducted from October 1 of the previous year to September 30 of the current year on NFS land and public land administered by BLM. The annual report will include the following information: name of chemicals used, application rate, amount applied, acres treated, and any other applicable information.

In addition, during years where revegetation monitoring occurs, Licensee will provide an annual report with the details of revegetation monitoring results from the most recent year, including comparison with the previous year's results, where applicable, at least 30 days prior to the Annual Consultation Meeting. Forest Service and/or BLM comments will be discussed at the meeting.

When Licensee is monitoring special-status plant species, a draft report will be prepared and submitted to the Forest Service and/or BLM (as appropriate) 30 days prior to the Annual Consultation Meeting in those years when monitoring was conducted. The report will describe monitoring results by species, location, population size, and note any changes or trends. Data collected by species will be compiled and mapped on Forest Service and/or BLM compatible GIS Project area maps. Comments will be discussed at the Annual Consultation Meeting.

Licensee will also report at the Annual Consultation Meeting the location and extent of any emergency activities (e.g. emergency canal repairs, removal of imminent hazard trees) that required the use of machine-powered equipment within sensitive biological resources that otherwise would have followed a LOP. Other management activities and updates will also be reported during the meeting described above, including acres treated, type of treatment and other applicable information.

5.3 Plan Revisions

NID, in consultation with the Forest Service and BLM, will review, update, and/or revise the Plan if significant changes in vegetation management occur. Changes may be implemented if monitoring feedback indicates that resource objectives are not being met.

Any updates to the Plan would be prepared in coordination and consultation with Forest Service and BLM. A minimum of 60 days would be allowed for the Forest Service and BLM to comment and make recommendations before NID files the updated plan with FERC. NID would include all relevant documentation of coordination/consultation with the updated Plan filed with FERC. If NID does not adopt a particular recommendation, the filing would include the reasons for not doing so, based on project-specific information.

SECTION 6

REFERENCES CITED

Nevada Irrigation District (NID). 2011. Transportation Management Plan. April 2011.

United States Department of Agriculture, Forest Service (Forest Service). 2008. Sierra Resource Management Plan Record of Decision.

United States Department of the Interior, Bureau of Land Management (BLM). 2008. Sierra Resource Management Plan and Final Environmental Impact Statement. Folsom Field Office. Folsom, California.

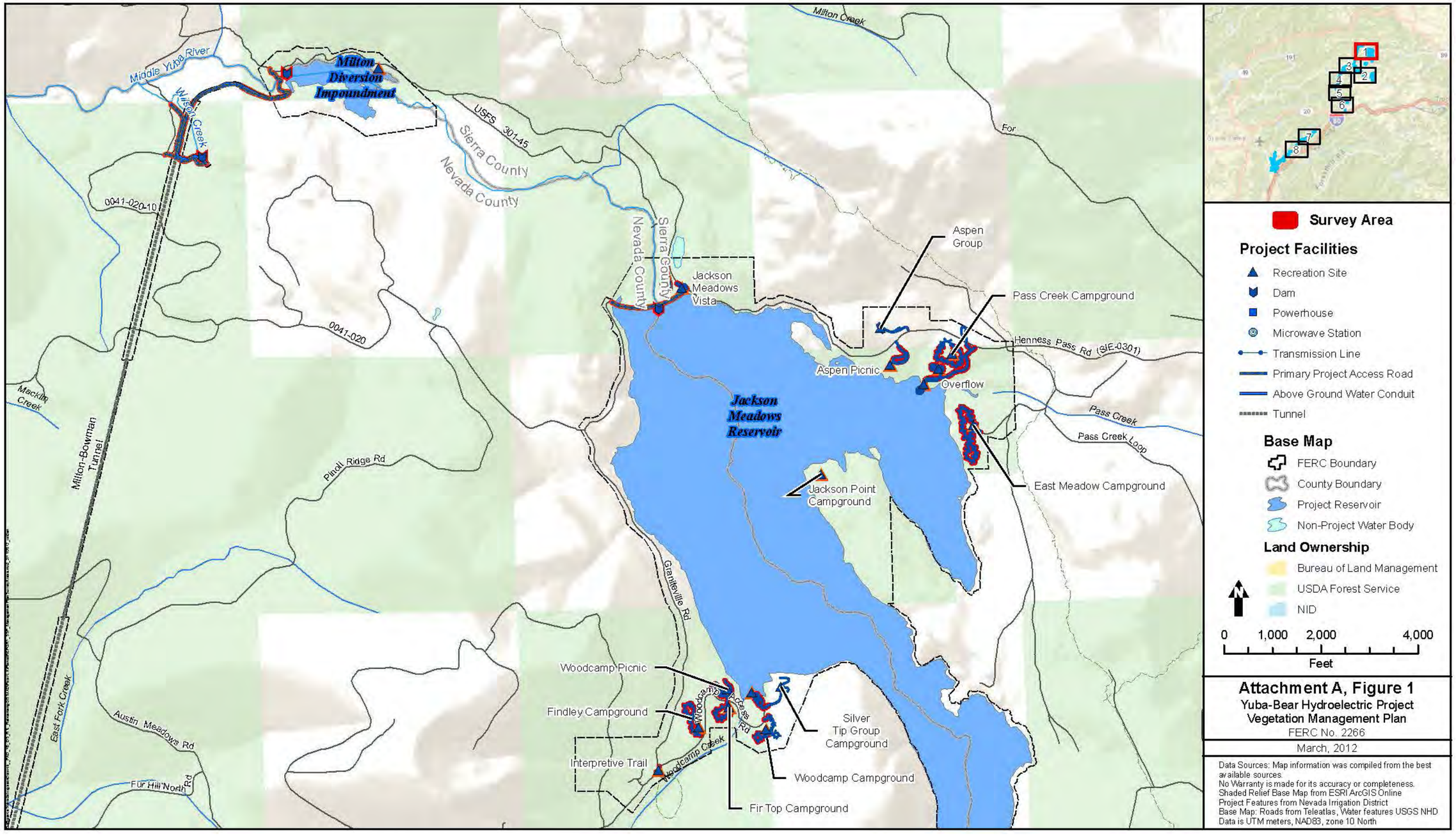
Page Left Blank

Yuba-Bear Hydroelectric Project
FERC Project No. 2266-096

Amended Vegetation Management Plan

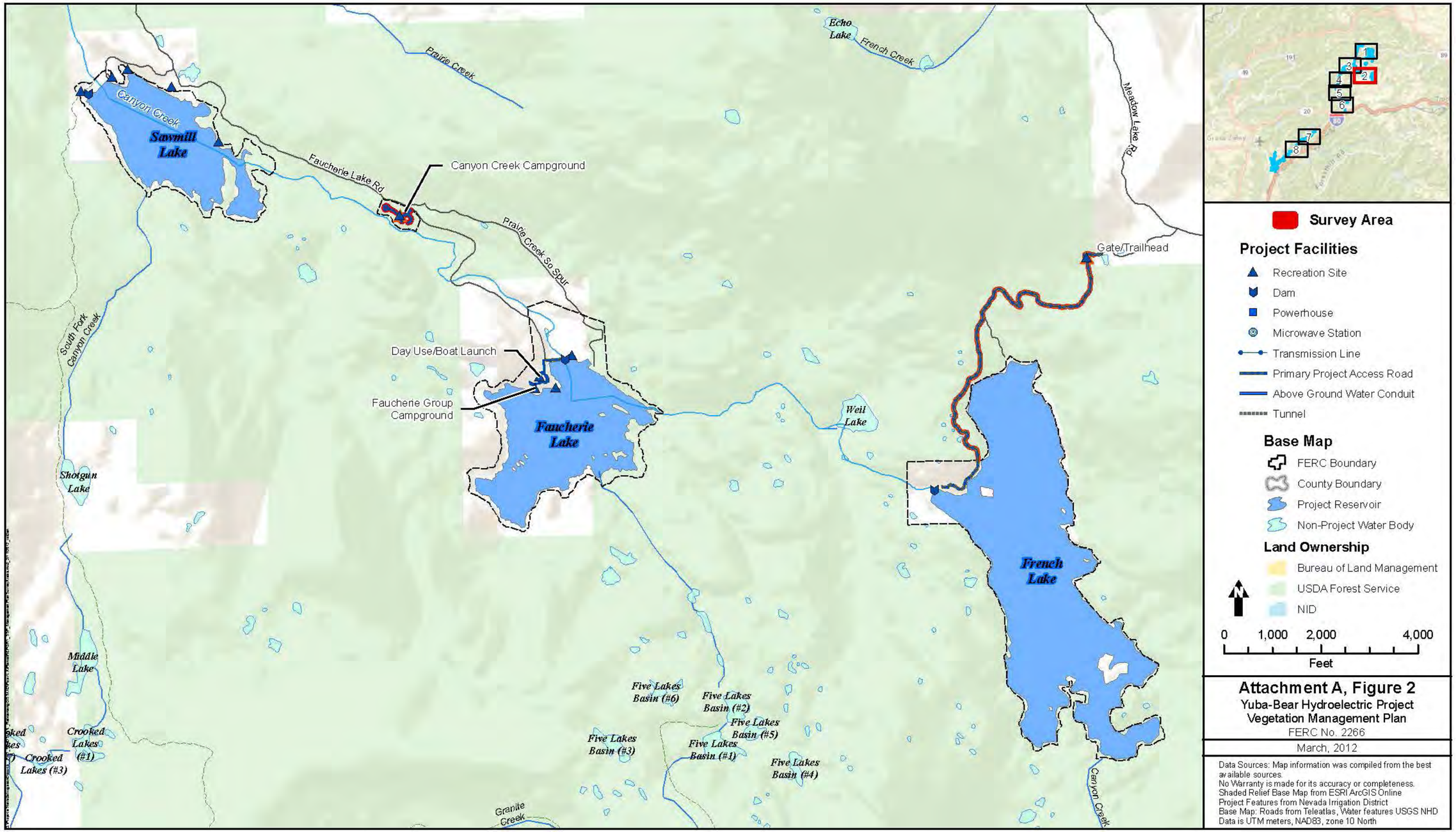
Attachment A

Special-Status Plants Survey Area: Figures 1 to 8



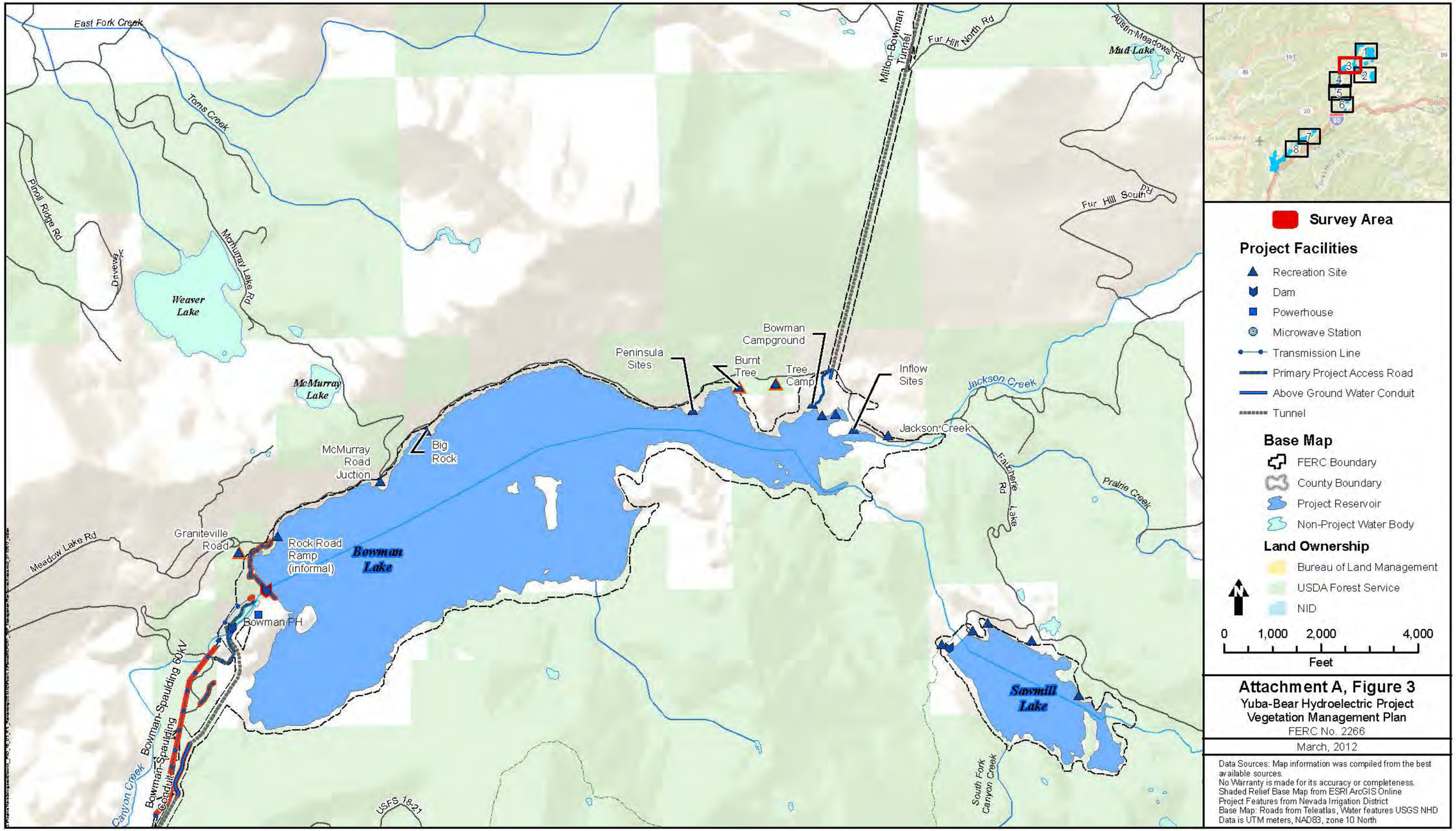
Attachment A, Figure 1
Yuba-Bear Hydroelectric Project
Vegetation Management Plan
FERC No. 2266
March, 2012

Data Sources: Map information was compiled from the best available sources.
No Warranty is made for its accuracy or completeness.
Shaded Relief Base Map from ESRI ArcGIS Online
Project Features from Nevada Irrigation District
Base Map: Roads from Teleatlas, Water features USGS NHD
Data is UTM meters, NAD83, zone 10 North



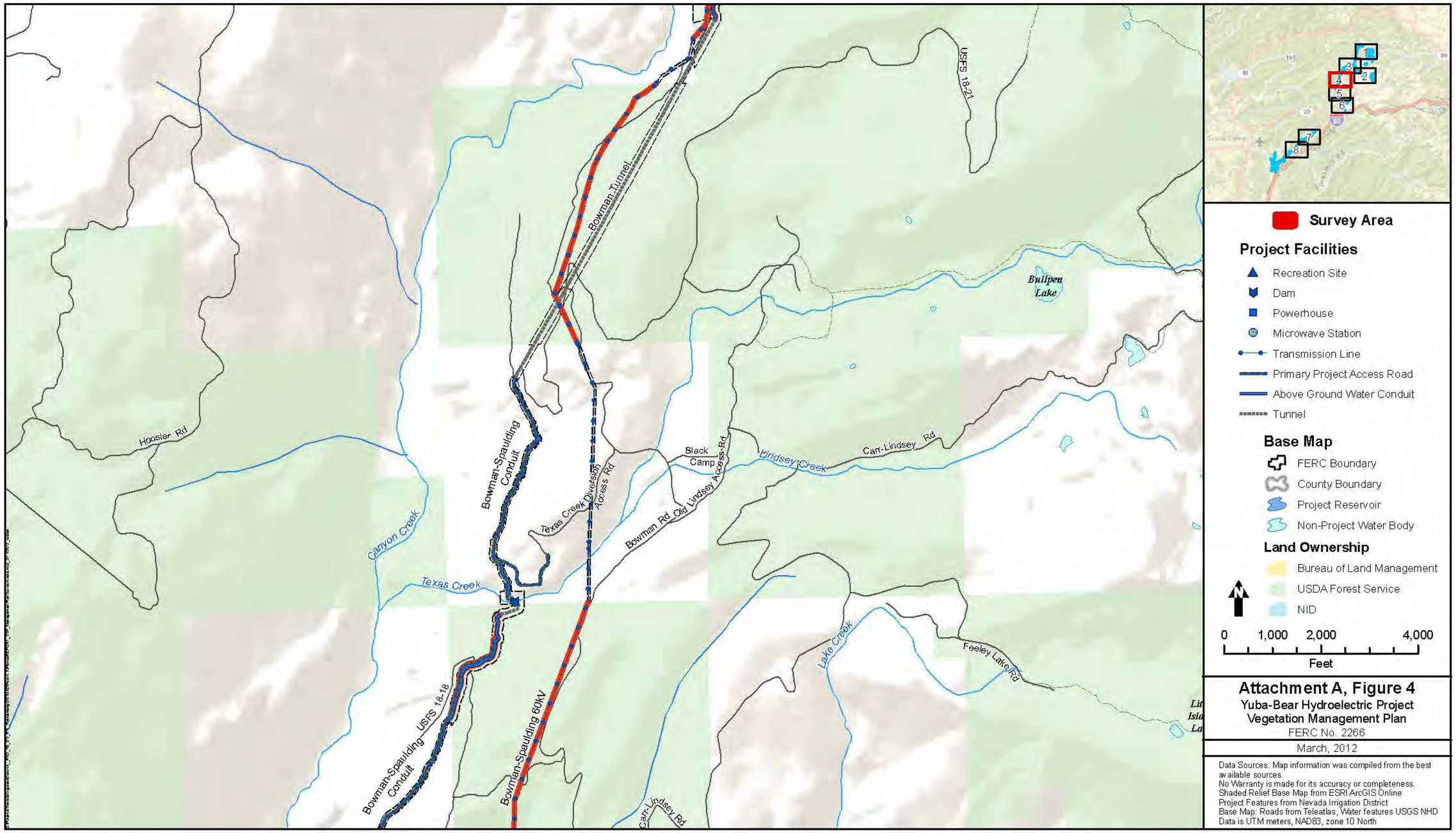
Attachment A, Figure 2
Yuba-Bear Hydroelectric Project
Vegetation Management Plan
FERC No. 2266
March, 2012

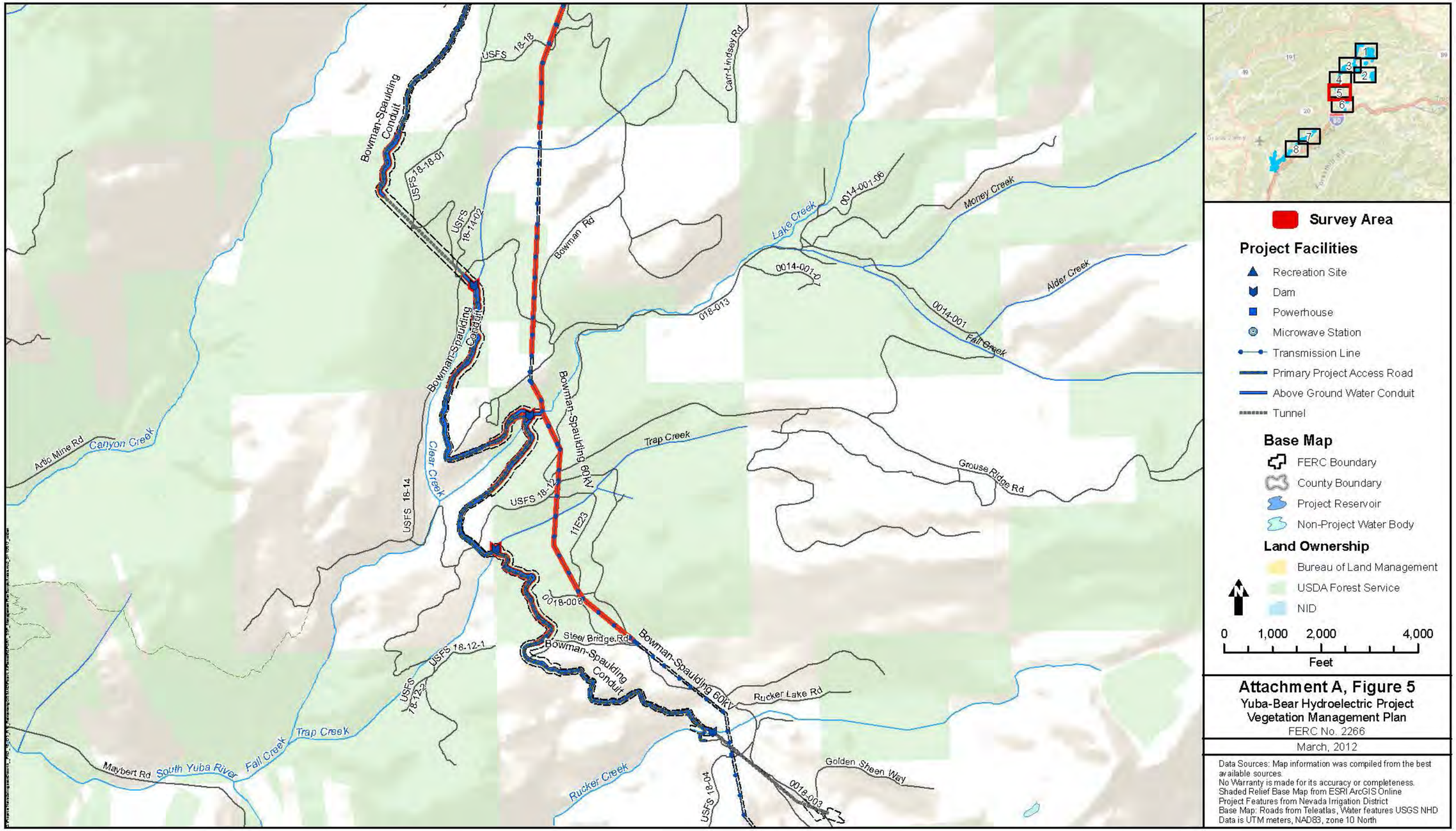
Data Sources: Map information was compiled from the best available sources.
No Warranty is made for its accuracy or completeness.
Shaded Relief Base Map from ESRI ArcGIS Online
Project Features from Nevada Irrigation District
Base Map: Roads from Teleatlas, Water features USGS NHD
Data is UTM meters, NAD83, zone 10 North



Attachment A, Figure 3
Yuba-Bear Hydroelectric Project
Vegetation Management Plan
FERC No. 2266
March, 2012

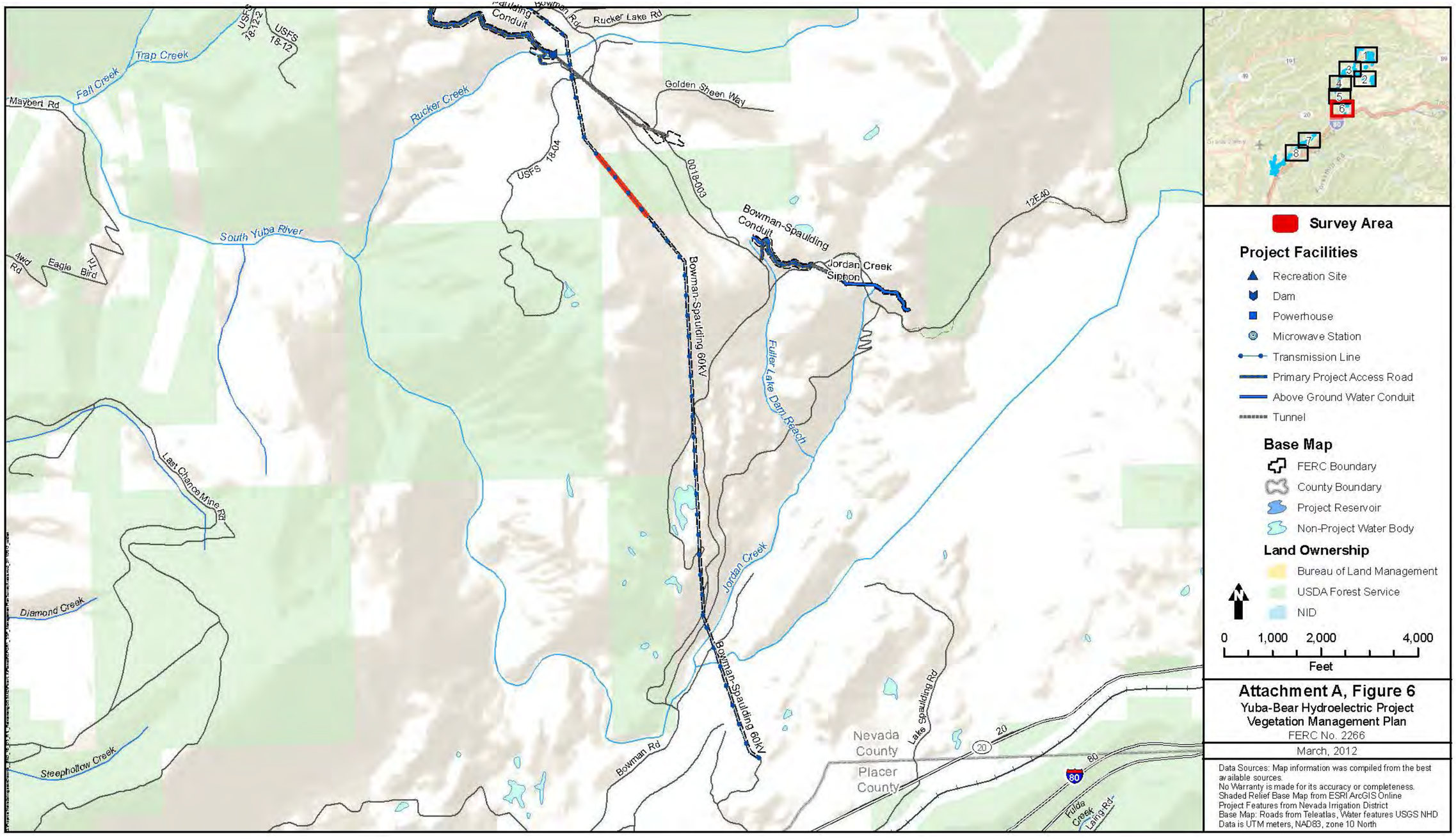
Data Sources: Map information was compiled from the best available sources.
No Warranty is made for its accuracy or completeness.
Shaded Relief Base Map from ESRI ArcGIS Online
Project Features from Nevada Irrigation District
Base Map: Roads from Teleatlas, Water features USGS NHD
Data is UTM meters, NAD83, zone 10 North





Attachment A, Figure 5
Yuba-Bear Hydroelectric Project
Vegetation Management Plan
FERC No. 2266
March, 2012

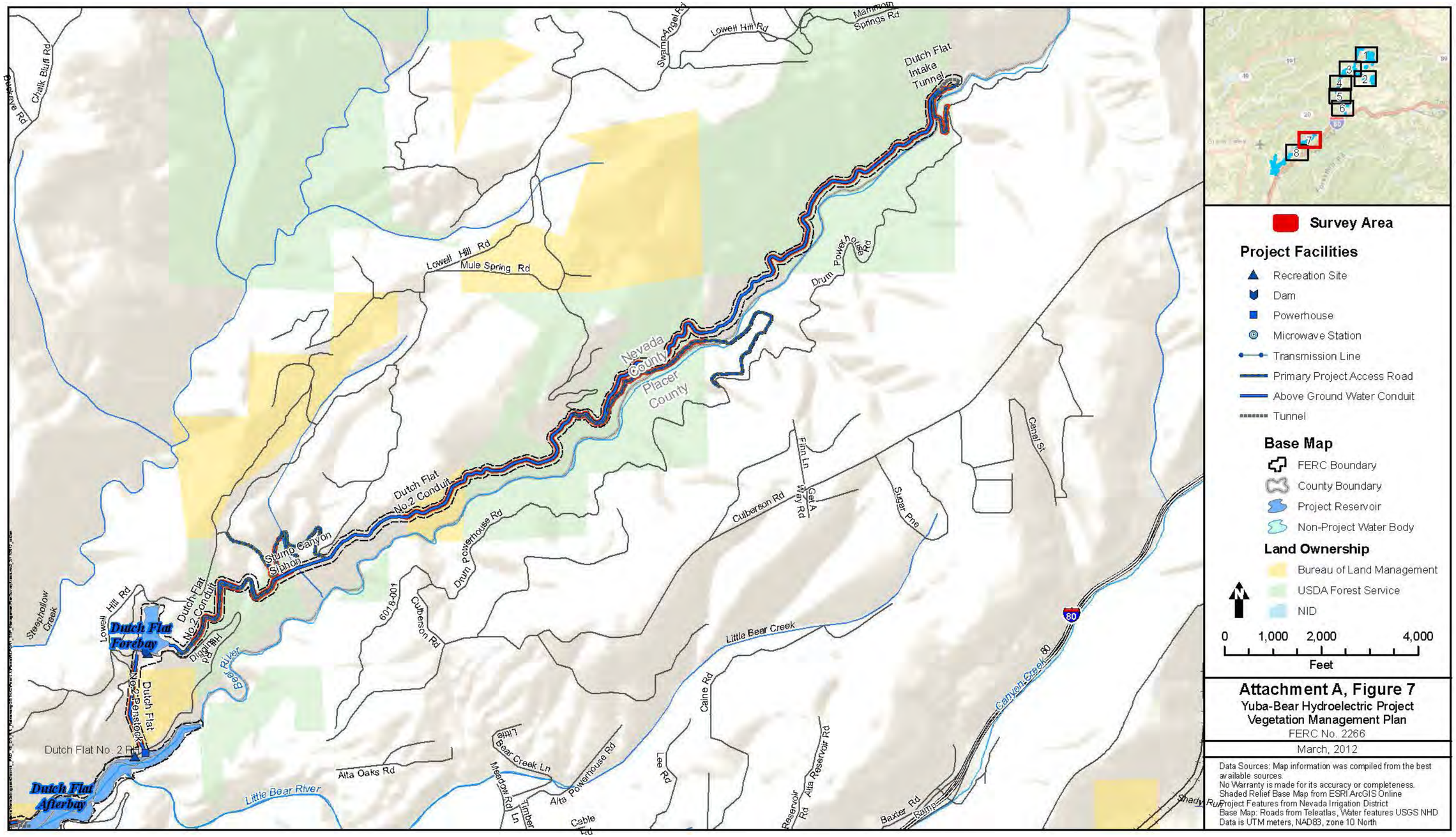
Data Sources: Map information was compiled from the best available sources.
No Warranty is made for its accuracy or completeness.
Shaded Relief Base Map from ESRI ArcGIS Online
Project Features from Nevada Irrigation District
Base Map: Roads from Teleatlas, Water features USGS NHD
Data is UTM meters, NAD83, zone 10 North



Attachment A, Figure 6
Yuba-Bear Hydroelectric Project
Vegetation Management Plan
FERC No. 2266

March, 2012

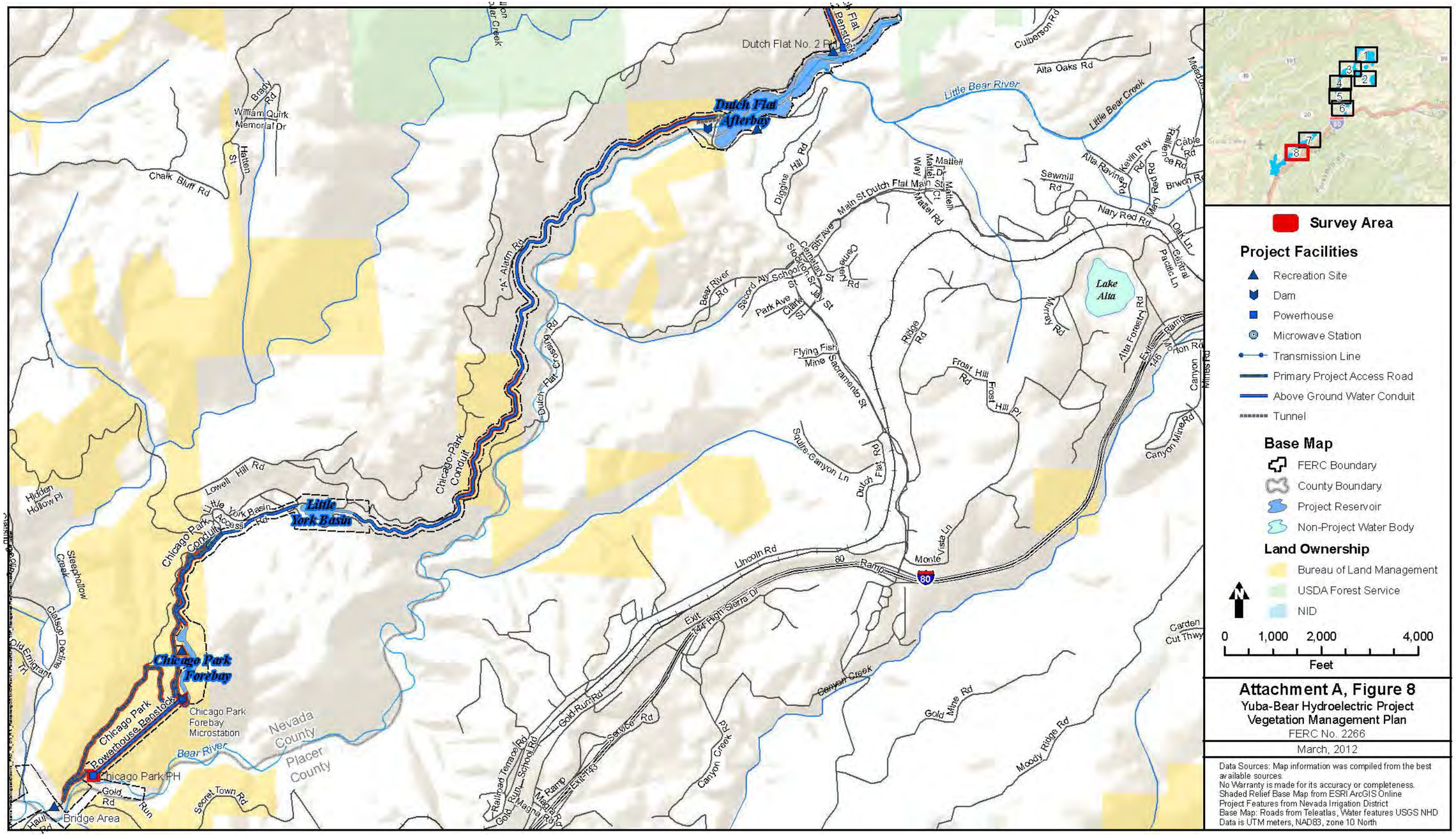
Data Sources: Map information was compiled from the best available sources.
No Warranty is made for its accuracy or completeness.
Shaded Relief Base Map from ESRI ArcGIS Online
Project Features from Nevada Irrigation District
Base Map: Roads from Teleatlas, Water features USGS NHD
Data is UTM meters, NAD83, zone 10 North



Attachment A, Figure 7
Yuba-Bear Hydroelectric Project
Vegetation Management Plan
FERC No. 2266

March, 2012

Data Sources: Map information was compiled from the best available sources.
No Warranty is made for its accuracy or completeness.
Shaded Relief Base Map from ESRI ArcGIS Online
Project Features from Nevada Irrigation District
Base Map: Roads from Teleatlas, Water features USGS NHD
Data is UTM meters, NAD83, zone 10 North



Application for a New License
Major Project – Existing Dam

Amended Recreation Facilities Plan

Yuba-Bear Hydroelectric Project
FERC Project No. 2266-096

Prepared by:
Nevada Irrigation District
1036 West Main Street
Grass Valley, CA 95945
www.nidwater.com

June 2012

Table of Contents

Table of Contents (continued)

Table of Contents (continued)

List of Tables

List of Tables (continued)

List of Figures

List of Attachments

Page Left Blank

GLOSSARY - DEFINITION OF TERMS, ACRONYMS AND ABBREVIATIONS

For the purpose of this Plan, the following definitions apply:

Term	Definition
Capital Improvement	The construction, installation, or assembly of a new fixed asset, or the significant alteration, expansion, or extension of an existing fixed asset to accommodate a change of purpose.
Construction Plans	Construction Plans are professionally prepared engineering, architectural, or landscape architectural plans that provide specifications for buildings, utilities, roads, grading, plantings, and related improvements. At facilities on NFS land, after review, construction plans must be approved by the appropriate Forest Service line officer.
Design Narrative	Describes the management objectives, design criteria, and constraints associated with the development or major rehabilitation of a recreation facility. The Design Narrative should include: (a) management objectives; (b) design criteria, including criteria on type and color of materials and accessibility; (c) existing physical conditions; (d) any rehabilitation and new construction; (e) anticipated management problems that design may minimize; (f) site capacity, durability, and protection; (g) user safety; and (h) interpretive services.
Designated Campsite	A campsite that is formally identified with a site marker and has a steel fire ring, at a minimum, but may also include additional site facilities or features such as a picnic table and food locker.
Primitive Campsite	A campsite with minimal site facilities, typically only a fire ring and/or picnic table.
Existing Site Plan	A conceptual schematic that illustrates the layout, location, size, shape and relationship between existing recreation facilities and features. An Existing Site Plan does not include detailed design elements, such as construction documents, specifications, etc.
Feasible/Feasibility	A proposal or development will be considered “feasible”, if NID, and the Forest Service on NFS land, mutually agree that a proposal or development is practical and reasonable based on the site conditions, which will likely be determined through field or site visits and discussions.
Major Rehabilitation ▪ Replacement ▪ Recondition ▪ Reconstruction	Making capital improvements and reconditioning or replacing an existing fixed asset or any of its components in order to restore the functionality or life of the asset. Replacement is the substitution or exchange of an existing fixed asset or component with one having essentially the same capacity and purpose. The decision to replace or rehabilitate a fixed asset or component is usually reached when replacement is more cost effective or more environmentally sound. Replacement of an asset or component usually occurs when it nears or has exceeded its useful life.
Minor Rehabilitation	Minor rehabilitation includes repairs, and replacement of parts that result in fewer breakdowns and fewer premature replacements, and help achieve the expected life of the fixed asset. Minor rehabilitation does not include construction of new facilities or the replacement of an existing fixed asset. Minor rehabilitation activities will arrest deterioration and appreciably prolong the life of a property. Examples include: installing a new roof, new floor, or new siding, replacing electrical wiring or heating systems, repairing or replacing pipes/distribution lines, pumps and motors, and repairing the paths, walks, or walls of recreation facilities.
Open Season	An open season refers to the season when facilities are generally opened, which is generally dependent upon elevation.
Operating Party	Party or entity responsible for operation and maintenance of a recreation facility. For this Plan, the Operating Party will be either NID or the Forest Service.

Glossary (continued)

Term	Definition
Operational Maintenance	Keeping fixed assets in acceptable condition, including repairs, painting, replacement of minor parts and minor structural components. Operation maintenance, or reconditioning, neither materially adds to the value of the property nor appreciably prolongs its life. Operational maintenance excludes activities aimed at expanding the capacity of an asset or otherwise upgrading it to serve needs different from, or significantly greater than those originally intended. The work serves only to keep the facility in an ordinary, efficient operation condition. Examples include: interior painting, repair of broken windows, light bulb replacement, cleaning, unplugging drains, greasing, servicing, inspecting, oiling, adjusting, tightening, aligning, and sweeping. Maintenance activities may include: work needed to meet laws, regulations, codes, and other legal direction (such as compliance with ADA) as long as the original intent or purpose of the fixed asset is not changed.
Peak Season	Peak season extends from Memorial Day to Labor Day.
Recreation Day	Each visit by a person to a development for recreation purposes during any portion of a 24-hour period.
Recreation Facility Road	A road located within the footprint of the recreation facility, whose starting point is typically demarcated by a recreation facility identification sign.
Recreation Facility Access Road	A road that provides exclusive access to a Project recreation facility and links directly to a Recreation Facility Road or Roads.
Redesign (small scale modifications)	Small-scale modifications of existing facilities that enhance the existing facility without drastically altering the existing footprint or alignment. Existing constructed features may be incorporated into the redesign whenever possible and will not be replaced with new constructed features if the features are in good condition and not approaching the end of its useful life. Prior to reconstruction or rehabilitation of a recreation facility, "small-scale" modifications (see examples below) will be made to the facility design to address the functionality of the facility and compliance of the facility with current design standards. These constructed features will be replaced with features that meet current standards when the feature is at or near the end of its useful life. Examples of the types of "small scale" modifications included in redesigning Project recreation facilities are included below: a. Lengthening and/or widening parking spur widths and geometries (in light of the current vehicle use of the facility); b. Enlarging or shifting the location of the minority of camp or picnic sites to meet FSORAG or other applicable accessibility guidelines (such as providing additiona clear floor space, site grading, and providing accessible routes); c. Re-aligning short segments of roads to improve vehicle circulation, but not to include wholesale re-alignment of the existing road; d. Relocating or repositioning restroom facilities to enhance function (particularly fo vault toilets); and Relocating above ground water spigots, but not wholesale relocation of the underground water distribution system.
Site Concept Plan	This plan presents a preliminary graphic illustration of proposed facilities and utilities in relationship to existing site features, facilities, and utilities. The Site Concept Plan will communicate proposed development ideas or alternatives. The Site Concept Plan may include enlargements of the area that indicate placement and orientation of the proposed facilities. This may include the use of aerial photography or topographic maps.

Glossary (continued)

Term	Definition
Site Development Plan	This plan presents a comprehensive graphic illustration of the facilities and utilities (both existing and proposed) to be built. The development plan is based on an accurate survey, usually drawn to a scale ranging from 1" = 20' or 1" = 100', with appropriate contour information, and may also include descriptions or lists of features. The plan must be approved by FERC before construction proposals are prepared. The plan must be consistent with the Site Concept Plan.
Suitability-Feasibility Analysis	An analysis to determine if site development is possible at a Project reservoir or Project reservoirs within a facility monitoring grouping. A proposed development will be considered suitable and feasible, if the proposal meets all of the following criteria; and, on NFS land, NID and the Forest Service mutually agree that the following criteria have been met: 1) development is practical and reasonable based on the site conditions; 2) development is appropriate for the ROS Class setting established for the lands; and 3) development is appropriate for the level of use desired based on direction by any applicable land management plans.

Page Left Blank

SECTION 1

INTRODUCTION

1.1 Background

In April 2011, Nevada Irrigation District (NID or Licensee), pursuant to Sections (§§) 5.17 and 5.18 of Title 18 of the Code of Federal Regulations (CFR), plans to file an application for a new license with the Federal Energy Regulatory Commission (FERC or Commission) for NID's Yuba-Bear Hydroelectric Project (Project), FERC Project No. 2266. The initial license for the Project, issued by the Federal Power Commission, FERC's predecessor, to NID on June 24, 1963, was effective on May 1, 1963, for a term ending April 30, 2013.

The Project is a water supply/power project located in the Middle Yuba River, Canyon Creek, Fall Creek, Rucker Creek, and Bear River basins in Nevada, Placer, and Sierra counties, California. The Project consists of four developments – Bowman, Dutch Flat, Chicago Park and Rollins – that collectively include nine on-stream reservoirs; three off-stream impoundments; two diversion dams; four powerhouses; one overhead, 60 kilovolt (kV) transmission line; and various water conduits and appurtenant facilities and structures.

Table 1.1-1 provides information regarding the physical characteristics of each Project reservoir. Figure 1.1-1 shows a flow schematic of the Project.

Table 1.1-1. Key information regarding the physical characteristics of Yuba-Bear Hydroelectric Project reservoirs and impoundments.

Project Reservoir	NMWSE[1] (ft)	Gross Storage[2] (ac-ft)	Usable Storage[2] (ac-ft)	Surface Area[2] (ac)	Maximum Depth[2] (ft)	Shoreline Length[2] (mi)	Drainage Area (sq mi)
MIDDLE YUBA RIVER SUB-BASIN							
Jackson Meadows Reservoir	6,036.0	67,435	64,641	1,008	144	9.9	37.3
Milton Diversion Dam Impoundment	5,690.0	275	275	100	37	1.3	39.8
CANYON CREEK SUB-BASIN							
Jackson Lake	6,592.67	1,330	975	52	54	1.1	0.70
French Lake	6,660.0	13,940	13,940	356	65	5.3	4.82
Faucherie Lake	6,123.0	3,980	3,740	150	42	2.4	9.29
Sawmill Lake	5,860.0	3,030	3,030	113	55	2.6	17.0
Bowman Lake[3]	5,562.0	68,363	68,127	827	162	7.6	28.5
BEAR RIVER SUB-BASIN							
Dutch Flat No. 2 Forebay	3,330.0	177.9	159.8	8	61	0.5	0.10
Dutch Flat Afterbay	2,741.0	1,359.2	1,359.2	38	170	1.9	21.2
Chicago Park Forebay	2,716.0	103	103	7	31	0.7	Negligible
Rollins Reservoir	2,171.0	58,682	54,453	788	209	19.0	104
Total	--	**218,739**	**212,847**	--	--	--	--

[1] Normal maximum water surface elevation
[2] At NMWSE.
[3] Including drainage into the Bowman-Spaulding Diversion Conduit from feeder tributaries

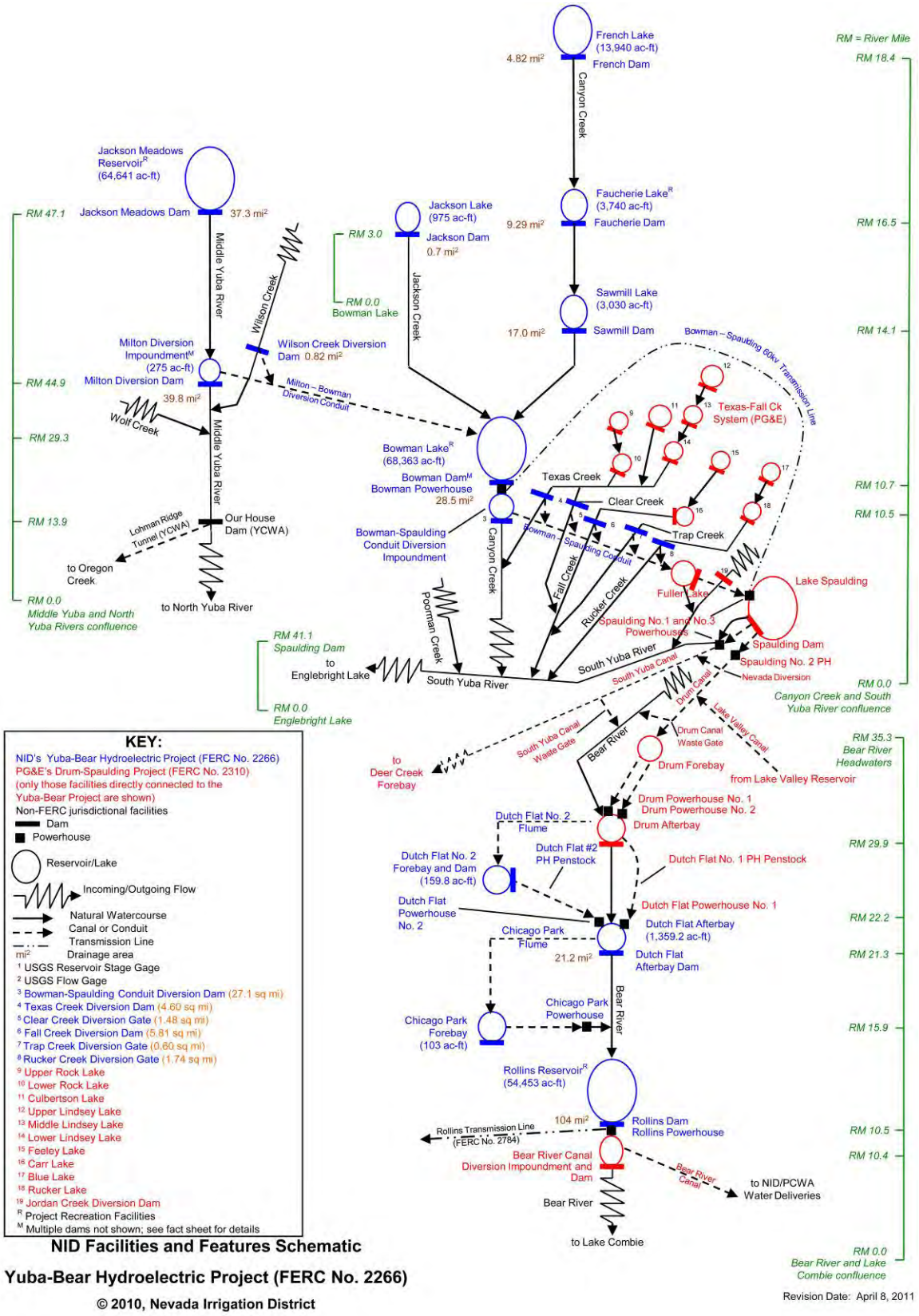


Figure 1.1-1. Yuba-Bear Hydroelectric Project flow schematic.

Some of the area within the FERC Project Boundary, as shown in Exhibit G of Licensee's application for new license occupies federally owned National Forest System (NFS) land managed by the United States Department of Agriculture, Forest Service (Forest Service) as part of the Tahoe National Forest (TNF), and some is federally owned land administered by the United States Department of the Interior, Bureau of Land Management (BLM) in conformance with the Sierra Resource Management Plan (BLM 2008). Table 1.1-2 shows the amount of federally owned land by development within the proposed FERC Project Boundary.

Table 1.1-2. Summary of land ownership within the proposed Yuba-Bear Hydroelectric Project FERC Project Boundary by Project Development.

Development	Forest Service (ac)	BLM (ac)	NID (ac)	Other Private (ac)	Total	
					(ac)	Percent
Bowman	1,202.2	--	2313.9	112.8	3,628.9	60%
Bowman-Spaulding Transmission Line	28.2	--	1.9	28.2	58.3	1%
Chicago Park	--	77	48.2	70.3	195.5	3%
Dutch Flat	205.1	13.9	53.1	89.4	361.5	6%
Rollins	--	140.2	1,690.6	7.3	1,838.1	30%
Total Acres	**1,435.5**	**231.1**	**4,107.7**	**308**	**6,082.3**	**100%**

1.2 Purpose of the Recreation Facilities Plan

As part of its Application for New License, NID shall continue to maintain and operate recreation facilities on the Project. Specifically, NID shall include the following requirement in a new license for the Project: NID shall implement this Recreation Facilities Plan (Plan), as outlined within to maintain, rehabilitate and upgrade the existing Project recreation facilities over the course of the new license term.

In 2010, NID consulted with the appropriate federal and state agencies on the content and outline of the Plan, including an initial meeting on January 29, 2010; and a meeting to get agency comments on a draft of the Plan on July 21, 2010. In addition, on August 24, 2010, NID provided a preliminary draft of the Plan to the agencies for 30-day review. A copy of the transmittal letter is provided in Attachment C. NID did not receive any comments on the preliminary draft of the Plan from the agencies following the 30-day review period.

In 2011 and 2012, NID consulted regularly with the appropriate federal and state agencies on the content of the Plan. This version of the Plan is updated based on these consultations.

This Plan describes in detail NID's responsibilities regarding recreation facilities under the new Project license.

1.3 Goals and Objectives of the Recreation Facilities Plan

The primary goal of the Plan is to guide public recreation use of the Project's recreation facilities over the term of the license, while minimizing recreation use impacts to natural, historic, and prehistoric resource within the Project area. The Plan includes the following objectives to help achieve this goal:

1. To provide a description and plan for recreation facilities that meet the needs of Project recreation users and are designed to meet federal, state, and local legal requirements as well as the Recreation Opportunity Spectrum (ROS) management objectives for their proposed locations, as applicable.
2. To describe in detail NID's responsibilities regarding recreation facilities under the new license.
3. To describe the monitoring plan over the term of the license to help ensure Project recreation users achieve high quality recreation experiences and that recreation use impacts are minimized and remain within acceptable limits.

1.4 Contents of the Recreation Facilities Plan

Besides this introductory material, this Plan includes the following:

- Section 2. This section describes existing Project recreation facilities, including condition, land ownership and 2009 use levels.
- Section 3. This section describes the recreation measures that will be implemented by NID for the Project during the new license, including recreational facility annual operational maintenance; recreational facility major rehabilitation; and capital improvements.
- Section 4. This section describes the recreation monitoring program, including the program components, monitoring schedule, and relationship of the monitoring program to the periodic updates of the Plan and the mandatory FERC reporting requirements for recreation (i.e. Form 80).
- Section 5. This section provides information regarding consultation, reporting and Plan review.
- Section 6. This section provides a list of the references cited in the Plan.
- Attachment A. This attachment includes maps showing the existing and proposed recreation facilities and recreation roads, and in particular the facilities in relation to the FERC Project Boundary.
- Attachment B. This attachment includes the Existing Site Plans for each of the existing recreation facilities that illustrate the layout, location, size, shape and relationship between existing recreation facilities.
- Attachment C. This attachment includes a copy of the letter transmitting a preliminary draft of the Recreation Facilities Plan (dated August 24, 2010) to the agencies for 30-day review.

SECTION 2

EXISTING RECREATION USE AND FACILITIES

The Project's recreation facilities and opportunities are found in four basins – the Middle Yuba River Basin, South Yuba River Basin; Canyon Creek Basin; and the Bear River Basin. In all, the Project facilities provide numerous and varied recreation opportunities, which include, but are not limited to camping, fishing, boating, swimming, hiking, scuba diving, picnicking, sightseeing, wildlife viewing, and hunting. Notably, the majority of the Project's recreation facilities and overall use occur at two Project reservoirs – Jackson Meadows and Rollins reservoirs. These two larger reservoirs provide day use and overnight facilities and opportunities for visitors, including boating, camping, and picnicking facilities. In addition, the other Project reservoirs generally provide less developed and primitive recreation opportunities. A map showing the Project reservoirs is shown in Figure 2.1-1.

Much of the Project's recreation opportunities are located within the TNF. TNF's management objectives in the Project Area provide for a range of different recreation settings. TNF's ROS in the Project Area includes "Roaded-Natural," "Semi-Primitive Motorized," and "Semi-Primitive Non-motorized" classifications. Of note, the ROS classifications referenced in this Plan are based on the current ROS classifications from the 1990 TNF Land and Resource Management Plan (LRMP). These references would be updated should the TNF revise the ROS classifications in the future.

2.1 Description of Recreation Areas, Facilities and Land Ownership

Project recreation facilities are divided into recreation areas, which in most cases include several Project reservoirs and their associated Project recreation facilities. Table 2.1-1 summarizes the Project recreation facilities including land ownership. Each of these facilities is identified on the map series in Attachment A, including roads associated with the Project recreation facilities.

Table 2.1-1. Summary of existing Yuba-Bear Hydroelectric Project recreation facilities.

Project Reservoir	Recreation Facility	Manager	Host	Fee	Land Ownership	Camp Units	Picnic Units	Boat Launch			Parking Spaces
								No.	Lanes	Type	
JACKSON MEADOWS RECREATION AREA											
Jackson Meadows Reservoir	East Meadow Campground	Forest Service	X	X	NFS[2]	46	--	--	--	--	6
	Pass Creek Campground	Forest Service[1]	X	X	NFS, NID[3]	30	--	--	--	--	--
	Pass Creek Overflow Campground	Forest Service[1]	--	X	NFS	9	--	--	--	--	--
	Pass Creek Boat Launch	Forest Service[1]	--	--	NFS	--	--	2	2	concrete	43
	Aspen Group Campground	Forest Service[1]	--	X	NID	3	--	--	--	--	35
	Aspen Picnic Area	Forest Service[1]	--	X	NFS, NID[3]	--	11	--	--	--	30
	Jackson Meadows Vista	Forest Service[1]	--	--	NFS	NA	--	--	--	--	8
	Findley Campground	Forest Service[1]	--	X	NFS	14	--	--	--	--	--
	Fir Top Campground	Forest Service[1]	--	X	NFS	12	--	--	--	--	--
	Woodcamp Campground	Forest Service[1]	X	X	NFS, NID[3]	20	--	--	--	--	--
	Woodcamp Picnic Area	Forest Service[1]	--	--	NFS	--	6	--	--	--	35
	Woodcamp Boat Launch	Forest Service[1]	--	--	NFS	--	--	1	1	concrete	36
	Silvertip Group Campground	Forest Service[1]	--	X	NID	2	--	--	--	--	15
	Jackson Point Boat-In Campground	Forest Service[1]	--	X	NFS	10	--	--	--	--	--
Milton Div. Impoundment	Shoreline access (restroom only)	Forest Service	--	--	NFS	--	--	--	--	--	--
FRENCH LAKE RECREATION AREA											
French Lake	No developed facilities	--	--	--	NFS, NID	--	--	--	--	--	--
BOWMAN LAKE RECREATION AREA											
Bowman Lake	Bowman Lake Campground	Forest Service	--	--	NID	11	--	2	1	dirt	--
Sawmill Lake	No developed facilities	--	--	--	NFS, NID	--	--	--	--	--	--
Canyon Creek (non-reservoir)	Canyon Creek Campground	Forest Service	--	--	NFS	16	--	--	--	--	--
Faucherie Lake	Faucherie Group Campground	Forest Service	--	X	NID	2	--	--	--	--	6
	Faucherie Day Use & Boat Launch	Forest Service	--	--	NID	--	--	1	1	dirt	14
DUTCH FLAT RECREATION AREA											
Dutch Flat No. 2 Forebay	No developed facilities	--	--	--	NID	--	--	--	--	--	--
Dutch Flat Afterbay	No developed facilities	--	--	--	NID, PG&E, BLM	--	--	--	--	--	--
Chicago Park Forebay	No developed facilities	--	--	--	BLM	--	--	--	--	--	--
ROLLINS RESERVOIR RECREATION AREA											
Rollins Reservoir	Orchard Springs Recreation Complex	NID	X	X	NID	101	--	1	2	concrete	150
	Greenhorn Recreation Complex	NID[1]	X	X	NID	79	3	1	2	concrete	143
	Peninsula Recreation Complex	NID[1]	X	X	NID	67	--	1	2	concrete	50
	Long Ravine Recreation Complex	NID	X	X	NID	85	--	1	2	concrete	72

[1] Facility is operated by a concessionaire.
[2] NFS represents National Forest System lands.
[3] Land ownership is predominantly Forest Service, but small portions are located on NID land.

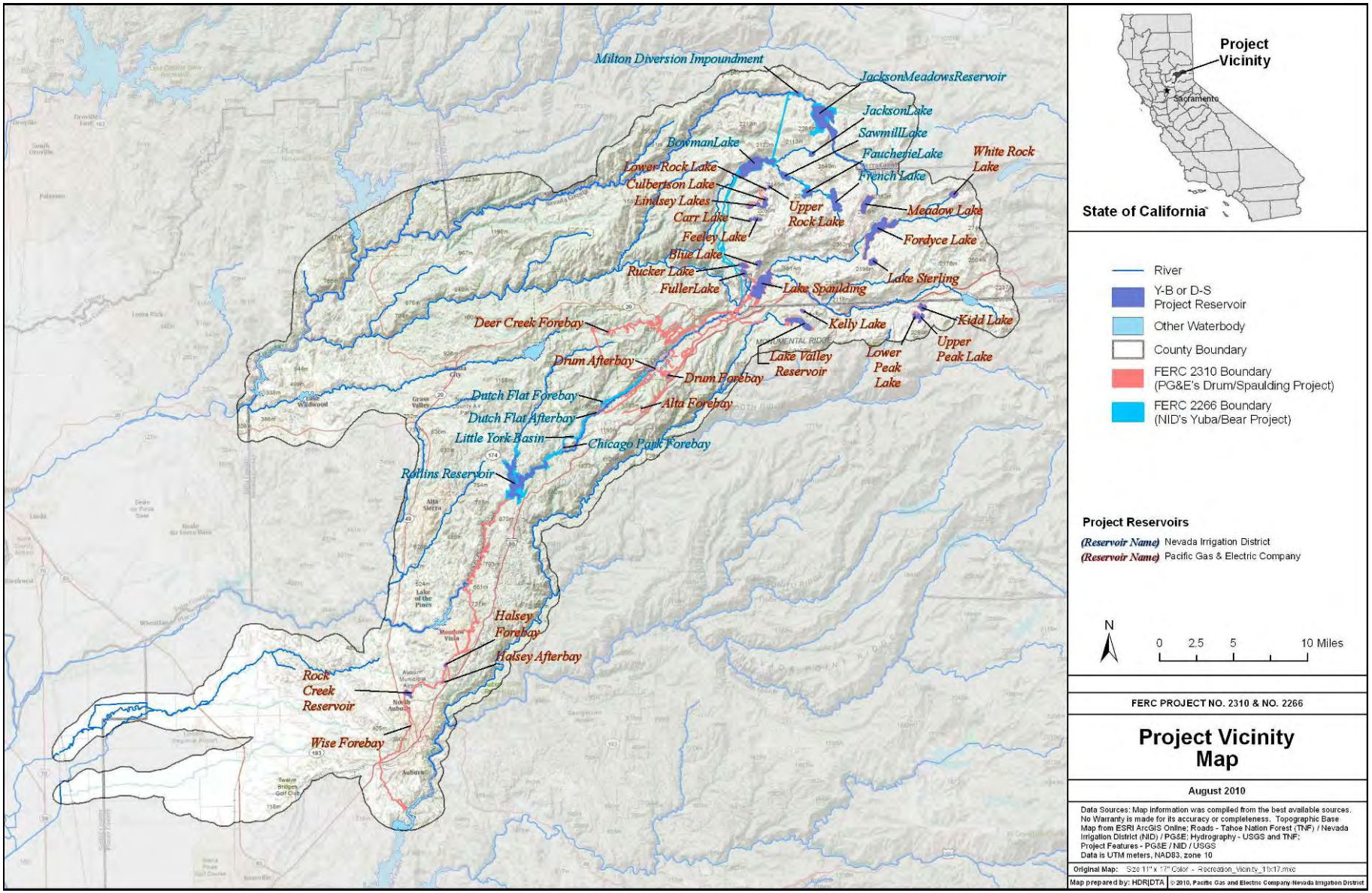


Figure 2.1-1. Yuba-Bear Hydroelectric Project vicinity map.

2.2 Existing Project Recreation Use Levels

Most of the Project's recreation facilities occur at seven Project reservoirs, and include overnight camping, picnicking and a variety of other recreation opportunities. Recreation activities in the Project Area (or area within the FERC Project Boundary) are numerous and varied and include, but are not limited to camping, fishing, boating, swimming, hiking, picnicking, sightseeing, wildlife viewing, four-wheel driving, hunting and winter activities.

In 2009, the average peak season recreation use estimate[1] in Recreation Days[2] (RD) for the Project was 157,599 RDs; and 64 percent of that use was overnight use (101,351 RDs) compared to day use (56,237 RDs). More than 90 percent of the annual recreation use estimate occurs during the peak season. Table 2.2-1 summarizes the breakdown of peak season recreation use by reservoir.

Table 2.2-1. 2009 peak season recreation use estimates for the Yuba-Bear Hydroelectric Project by reservoir in Recreation Days.

Recreation Area	Project Reservoir	Total Recreation Days	Day Use Recreation Days	Overnight Recreation Days
Jackson Meadows	Jackson Meadows Reservoir	20,185	3,414	16,770
	Milton Diversion Impoundment	2,591	863	1,728
French Lake	French Lake	324	117	206
Bowman Lake	Bowman Lake	5,372	648	4,723
	Sawmill Lake	3,547	339	3,206
	Faucherie Lake	4,671	1,136	3,534
Dutch Flat	Dutch Flat No. 2 Forebay	381	318	63
	Dutch Flat Afterbay	973	823	149
	Chicago Park Forebay	4,103	3,517	586
Rollins Reservoir	Rollins Reservoir	115,455	45,065	70,389
Yuba-Bear Hydroelectric Project Total		**157,599**	**56,237**	**101,351**

2.3 Existing Project Recreation Facilities at Project Reservoirs

The following section includes a detailed description of the existing Project recreation facilities and opportunities. At reservoirs with developed recreation facilities, NID detailed the condition and level of compliance (as of fall 2007) with the pertinent Americans with Disabilities Act (ADA) accessibility standards. NID utilized the Forest Service Outdoor Recreation Accessibility Guidelines (FSORAG) (USDA 2006) as the accessibility standards at all project reservoirs with developed recreation facilities, which are the current benchmark for outdoor recreation settings.

In fall 2007, NID inventoried and evaluated the existing condition and level of accessibility of all the Project recreation facilities. Facilities and amenities (e.g., vehicle spurs, tables, fire rings,

[1] The average use estimate is the average of the low and high use estimates developed in 2009 as part of the Recreation Use and Visitor Survey Study during relicensing.

[2] A Recreation Day (RD) is defined as each visit by a person to a development for recreation purposes during any portion of a 24-hour period (as defined in the Glossary of FERC Form 80 Terms).

ramps, etc.) were considered in "good" condition if they were functional, well-maintained, showed no signs of deterioration and had the majority of their useful life remaining. Facilities and components were considered in "poor" condition if they were non-functional, had missing or broken parts and/or major structural damage was evident. A facility was considered to be in "fair" condition when it had some minor structural damage that could be repaired with ease or was functional, but was showing signs of wear and tear (cracked wood, broken windows or door handles, etc.). Facilities in fair condition generally had a portion of their useful life remaining, but did not need immediate replacement.

The level of accessibility is categorized as "universal," "partial," or "not designed to accessible guidelines." "Universal" accessibility means all the site components within a site or facility is accessible, including the access routes to each component. "Partial" accessibility means that at least one, but not all, of the site components is accessible. A site/facility is considered "not designed to accessible guidelines" if none of the site components are designed for accessibility. As applicable, NID has updated the level of accessibility as needed based on site modifications since the evaluations in 2007.

2.3.1 Jackson Meadows Recreation Area

The Jackson Meadows Recreation Area consists of three Project reservoirs - Jackson Meadows Reservoir, Milton Diversion Dam Impoundment, and French Lake.

2.3.1.1 Jackson Meadows Reservoir

Jackson Meadows Reservoir lies on the eastern edge of the Project Area, at an elevation of 6,036 feet. Access to the reservoir occurs by three routes. The only paved route occurs from the east via Henness Pass Road (Forest Service Road 07) approximately 18 miles from Highway 89. Access from the west (dirt/gravel roads) is via Sierra County Road 401 and Henness Pass Road (Sierra County Road 301) approximately 25 miles from Highway 49 (Downieville, CA). Access from the south is via the partially paved Bowman Lake Road (Forest Road 18) and dirt/gravel Nevada County Road 843 and 956 approximately 23 miles from Highway 20.

At maximum water surface elevation, Jackson Meadows Reservoir is 1,008 acres with 9.9 miles of shoreline (NID 2010). Maximum speed on the reservoir is 35 mph from official sunrise to sunset and 10 mph from sunset to sunrise. A "flat wake" zone of 5 mph occurs within 200 feet of the Woodcamp Boat launch (Nevada County 2004). California Department of Fish and Game (CDFG) stocks rainbow trout in the reservoir monthly from May through August, and the reservoir supports year round fishing (CDFG 2007).

Jackson Meadows Reservoir Recreation Area consists of eight campgrounds, two picnic areas and two boat launches – all located on either National Forest System (NFS) land or NID land. As a whole, the recreation area provides overnight camping at 131 developed campsites, five group camping sites that can accommodate up to 150 persons-at-one-time (PAOT), and ten boat-in campsites. In addition, the recreation area provides 17 total picnic sites. NID received state funding under the Department of Water Resources (CDWR) Davis-Grunsky Act for the original

construction of the recreation facilities at Jackson Meadows Reservoir. All facilities are managed by the Forest Service through a concessionaire. The primary recreation activities at the reservoir are camping, boating, fishing, picnicking, swimming and hiking (NID 2010). In 2009, the peak recreation use estimate was 20,185 RDs comprised mostly of overnight use (16,770 RDs). The Project recreation facilities at Jackson Meadows Reservoir Recreation Area on NID land are summarized in Table 2.3-1.

Facilities on NID Land

Developed facilities on NID land include Aspen Group Campground and Silvertip Group Campground (Table 2.3-1). These lands are classified as "Roaded Natural" in the Forest Service ROS classification system (USDA 1990). In addition, a sanitary dump station is located on NID land across Henness Pass Road from the Pass Creek Campground and Boat Launch.

Table 2.3-1. Recreation facilities at Jackson Meadows Reservoir located on NID land.

Facility	Season (open/close)	Manager	Restrooms	Boat launch	Parking spaces	Picnic sites	Camp sites	Animal resistant containers	PAOT capacity
Aspen Group Campground	mid May/ late Sept	Forest Service (concessionaire)	3 vault (8 stalls)	none	35	none	3	2 (dumpsters)	100
Silvertip Group Campground	mid May/ late Sept	Forest Service (concessionaire)	2 vault (4 stalls)	none	15 (informal)	none	2	1 (dumpster)	50
Sanitary Dump Station	Mid May/ late Sept	Forest Service (concessionaire)	--	--	--	--	--	--	--

Source: NID 2010, TNF 2007.

At Aspen Group Campground, one of the three group sites (Hill Unit) is universally accessible with an accessible vault restroom, water spigot, tables, fire rings, grills, and associated access routes (NID 2008). At Silvertip Group Campground, accessibility is partial with an accessible CXT vault restroom, but both group sites lack accessible outdoor recreation access routes (steep trail/road access) and site components (tables, fire rings, etc.) (NID 2008). The sanitary dump station is not designed to accessible standards.

The condition and level of accessibility at each of the developed recreation sites on NID land are detailed in Table 2.3-2.

Table 2.3-2. Condition and level of accessibility (based on FSORAG) at the recreation facilities at Jackson Meadows Reservoir located on NID land.

Facility	Parameter	Rating	Details / Comments
Aspen Group Campground	Condition	Good to Fair	Most tables, fire rings and grills are in good condition; however, restrooms at Spring and Ridge units are in disrepair (weathered exteriors, roofs and stalls are tight/aging). Parking areas lack barriers. Hill Unit=Good; Spring & Ridge units=Fair.
	Accessibility	Universally Accessible	One of three group sites (Hill Unit) is universally accessible including CXT vault, water spigot, tables, fire rings, grills, and access routes.
Silvertip Group Campground	Condition	Fair	Some tables are old and weathered with loose benches. Lower flush restroom building is old and wood exterior is damaged.
	Accessibility	Partially Accessible	Neither of the group campsites are designed to accessible standards; however, the CXT vault restroom in the parking area is universally accessible. Access routes from the accessible restroom to the campsites are not designed to accessible standards either (steep slope from parking area to campsites).
Sanitary Dump Station	Condition	Good	All above ground facilities are in good condition, including the water spigot, dumpster, dump station concrete pad, and dump station connections.
	Accessibility	Inaccessible	The station is not designed to accessible standards.

Source: NID 2008

Facilities on NFS Land

Developed facilities on NFS land include Aspen Picnic Area, Pass Creek Campground, Pass Creek Overflow, Pass Creek Boat Launch, East Meadow Campground, Findley Campground, Fir Top Campground, Woodcamp Campground, Woodcamp Picnic Area, Woodcamp Boat Launch, Jackson Meadows Vista, and Jackson Point Boat-In Campground. The Project recreation facilities at Jackson Meadows Reservoir Recreation Area on NFS land are summarized in Table 2.3-3. These lands are classified as "Roaded Natural" in the Forest Service ROS classification system (USDA 1990).

Table 2.3-3. Recreation facilities at Jackson Meadows Reservoir located on NFS land.

Facility	Season (open/close)	Manager	Restrooms	Boat Launch	Parking spaces	Picnic sites	Camp sites	Animal resistant containers	PAOT Capacity
East Meadow Campground	mid May/ late Sept	Forest Service (concessionaire)	3 flush (9 stalls)	none	6 (overflow)	none	46	46 food lockers; 2 dumpsters	230
Pass Creek Campground	mid May/ late Sept	Forest Service (concessionaire)	2 flush/ 1 vault (10 stalls)	none	none	none	30 (9 overflow)	4 (dumpsters)	150 (45 overflow)
Pass Creek Boat Launch	Primary ramp: mid May/ late Sept	Forest Service (concessionaire)	1 vault (2 stalls)	2-lane concrete	23 (18 double, 2 accessible)	none	none	1 (dumpster)	n/a
	Auxiliary ramp: mid July/ late Sept		none	2-lane concrete	20 (unmarked)	none	none	none	n/a
Aspen Picnic Area	mid May/ late Sept	Forest Service (concessionaire)	2 vault (5 stalls)	none	30 (informal)	11	none	2 (dumpsters)	55
Jackson Meadows Vista	mid May/ late Sept	Forest Service (concessionaire)	1 vault (1 stall)	none	8 (informal)	none	none	none	n/a
Fir Top Campground	mid May late Sept	Forest Service (concessionaire)	1 flush (2 stalls)	none	none	none	12	1 (dumpster)	60
Findley Campground	mid May/ late Sept	Forest Service (concessionaire)	1 flush (4 stalls)	none	none	none	14	1 (dumpster)	70
Woodcamp Campground	mid May/ late Sept	Forest Service (concessionaire)	1 flush/ 1 vault (6 stalls)	none	none	none	20	2 (dumpsters)	100
Woodcamp Picnic Area	mid May/ late Sept	Forest Service (concessionaire)	2 vault (5 stalls)	none	35 est. (informal)	6	none	1 (dumpster)	30 (picnic) 100 (beach)
Woodcamp Boat Launch	mid May/ late Sept	Forest Service (concessionaire)	1 vault (2 stalls)	1-lane concrete	12 double/ 12 standard (informal)	none	none	none	n/a
Jackson Point Boat-In Campground	mid May/ late Sept	Forest Service (concessionaire)	2 pit (2 stalls)	none	none	none	10	none	50

Source: NID 2010, TNF 2007.

The condition and level of accessibility at each of the developed recreation sites on NFS land are detailed in Table 2.3-4.

Table 2.3-4. Condition and level of accessibility (based on FSORAG) at the recreation facilities at Jackson Meadows Reservoir located on NFS land.

Facility	Parameter	Rating	Details / Comments
Aspen Picnic Area	Condition	Fair	Several tables are in fair condition; lower 4-unit restroom is all wood construction with a dilapidated wood shingle roof. Upper sites and restroom are all in good condition.
	Accessibility	Partially Accessible	The CXT restroom and 1 picnic site are accessible but the path to the site is too steep with loose dirt. Lower/waterfront picnic sites are not designed to accessible guidelines.
Pass Creek Campground	Condition	Good	Recent site rehabilitation and new CXT restroom. Most amenities in good condition. Flush restroom is older wood construction and shows signs of use/aging.
	Accessibility	Partially Accessible	The new CXT vault restroom is accessible including access routes. None of the campsites are accessible; however, several campsites have some accessible site components, but access routes to campsites are not designed to accessible guidelines.
Pass Creek Boat Launch	Condition	Good	Paved parking areas and launch ramp (concrete) with new CXT restroom and path. Dock in good condition as well.
	Accessibility	Universally Accessible	The CXT restroom, path and parking spaces meet accessible standards.
East Meadow Campground	Condition	Good	All campground components in good condition with newly re-paved spurs in Loop A. Restrooms have recently been rehabilitated and well maintained (interior and exterior). Some water spigots are aging.
	Accessibility	Universally Accessible	The campground has 6 accessible campsites (4 standard and 2 RV campsites) with accessible site components (including table, fire ring, spurs and bear lockers. Of note, some spur sizes have departures from the standards in order to maintain a useable campsite footprint without altering the campground layout/size. Also, some but not all access routes to the site amenities within each campsite are compliant. Restrooms have some accessible components but retrofitted restrooms have narrow access routes to the buildings.
Jackson Meadow Vista	Condition	Good	The restroom and facility identification sign are in good condition. The gravel parking area is also in good condition.
	Accessibility	Partially Accessible	The newer CXT vault restroom is accessible including entrance route; however, the access routes are not designed to accessible standards.
Findley Campground	Condition	Good	Campsite amenities and restrooms are in good condition; however, the road and spur surfaces have areas of cracked, sunken and eroding asphalt.
	Accessibility	Inaccessible	The facility does not have any accessible components at the campground.
Fir Top Campground	Condition	Fair	Most of the site amenities are in fair condition with tables in poor condition (low to ground, damaged benches/tops).
	Accessibility	Inaccessible	The facility does not have any accessible components at the campground.
Woodcamp Campground	Condition	Fair	Most of the site amenities are in fair condition with tables and the flush restrooms in poor condition. Shows signs of heavy use.
	Accessibility	Inaccessible	The facility does not have any accessible components at the campground.
Woodcamp Picnic Area	Condition	Fair	Most site amenities in fair condition with tables and fire rings showing signs of aging; weathered and splitting wood.
	Accessibility	Partially Accessible	One restroom (parking area) is accessible, but the picnic area and swimming beach are not designed to accessible guidelines due to steep and rough access routes. The Picnic tables are not designed to accessible guidelines (ADAAG).
Woodcamp Boat Launch	Condition	Fair	Restroom is old and in disrepair (wood exterior is dilapidated). Concrete ramp is eroding at edges (and very narrow and long).
	Accessibility	Inaccessible	The facility does not have any accessible components at the boat ramp facility.
Jackson Point Boat-In Campground	Condition	Fair	Virtually all of the sites amenities are showing signs of age and deterioration (tables, rings, grills, and restrooms).
	Accessibility	Inaccessible	None of the amenities or access routes are accessible, but the experience is not designed to be accessible due to the nature of boat-in access along a steep shoreline access to the point.

Source: NID 2008.

Associated facilities within the FERC Project Boundary include Jackson Meadows Administrative Center. The center is located on Nevada County Road 956 and includes four buildings – warehouse, 3-bedroom residence, barracks**,** and utility shed - and a parking/storage area. The center was constructed by NID, and is located on NFS land. The center is maintained by the Forest Service's concessionaire under a Special Use Permit (SUP) and is primarily used

by Forest Service-authorized personnel only and generally for administration and maintenance needs[3] associated with the Project recreation facilities at Jackson Meadows Reservoir. In recent years, the Forest Service concessionaire has used a portion of the center's warehouse as a general store. The center is generally not a public use site except the small general store that is accessible to the public. NID has very little involvement in the center currently.

Dispersed Shoreline Use. In addition to developed facilities, dispersed day use occurs along the shoreline of Jackson Meadow Reservoir within the FERC boundary, primarily along the western and northern shoreline between the dam and the developed recreation complexes. The dispersed use occurs on a combination of NID, NFS, and private lands depending upon the location. Along the western shoreline (from the dam to the Woodcamp complex turn), the land ownership is predominantly NID land. Along the northern shoreline (from the dam to the Aspen Picnic Area), the land ownership is a combination of NFS, NID and private land. Visitors generally utilize the reservoir shoreline for day use activities, particularly for fishing. Of note, the Pacific Crest Trail traverses the boundary of the Jackson Meadows Recreation Area.

2.3.1.2 Milton Diversion Impoundment

Milton Diversion Impoundment lies on the northeastern edge of the Project Area at an elevation of 5,690 feet. Access to the reservoir occurs by two routes. From the east, access is approximately 2 miles from Jackson Meadows Reservoir via Henness Pass Road (Sierra County Road 301). Access from the west is via Sierra County Road 401 and Henness Pass Road (Sierra County Road 301) approximately 23 miles from Highway 49 (Downieville, CA).

At maximum water surface elevation, Milton Diversion Impoundment is 100 acres with 1.3 miles of shoreline (NID 2010). Milton Reservoir is designated as a fishing/special use area and the operation of internal combustion engines is illegal. CDFG manages the reservoir to maintain an abundant population of trophy-size trout. Milton Diversion Impoundment is the only non-flowing surface water in CDFG's Wild Trout Program with a maximum size limit; and requires barbless lures or flies and a two fish limit with a maximum size of 12 inches (CDFG 2007). Milton Diversion Impoundment has an ROS classification of "Roaded Natural" (USDA 1990). The primary recreation activities at Milton Diversion Impoundment are fishing, camping, boating, and picnicking (NID 2010). In 2009, the peak recreation use estimate was 2,591 RDs comprised mostly of overnight use (1,728 RDs).

Facilities on NID Land
None.

Facilities on NFS Land
All the facilities at Milton Diversion Impoundment are located on NFS land, which are classified as "Roaded Natural" in the Forest Service ROS classification system (USDA 1990). A single unit vault restroom and informational signs (site identification and angler information sign) are

[3] Currently, according to the concessionaire's SUP with the Forest Service, 85 percent of the gross receipts are used to fund the concessionaire's operation of the Jackson Meadows recreation facilities while 15 percent is returned to the Forest Service to be used for landlord type maintenance of facilities within the permit area (Jackson Meadows Reservoir).

located on the north shoreline near the impoundment inflow. The restroom building is in good condition and is designed to accessibility (FSORAG) standards; however, the access routes from the road and parking areas are not designed to accessible guidelines (NID 2008). The informational signs are in fair condition (NID 2008). Dispersed day use and camping occurs along the north shoreline at roughly three shoreline access areas and six dispersed campsites with rock fire rings.

2.3.2 French Lake Recreation Area

The French Lake Recreation Area consists of one project reservoir (French Lake) along Canyon Creek.

2.3.2.1 French Lake

French Lake lies in the southeastern portion of the Project Area at an elevation of 6,660 feet. Road access to French Lake occurs via two routes. First, access from Jackson Meadows Reservoir occurs on dirt roads leading south via Graniteville Road (Nevada County Road 956) and then southeast via Meadow Lake Road (Nevada County Road 843). Second, access from Webber Lake occurs on dirt roads approximately 15 miles leading south and west on Meadow Lake Road (Forest Route 86, Nevada County Road 843). A locked gate is located approximately two miles from the reservoir, where visitors may park their vehicles and continue on foot to the shoreline (NID 2010).

At maximum water surface elevation, French Lake is 356 acres with 5.3 miles of shoreline (NID 2010). French Lake is classified as "Semi-Primitive Non-motorized" in the Forest Service ROS classification system (USDA 1990). In addition, Nevada County classifies French Lake as a "small lake" and, as a result, has a maximum speed limit of 10 mph (Nevada County 2004). Primary recreation activities are hiking, backpacking, camping, and fishing (NID 2010). The reservoir does not have any developed recreation facilities. In 2009, the peak recreation use estimate was 324 RDs.

Facilities on NID Land
As noted above, no recreation facilities exist at the reservoir; however, two undeveloped campsites are located near the dam on NID land or lands classified as "Semi-Primitive Non-motorized" ROS class (USDA 1990).

Facilities on NFS Land
None.

2.3.3 Bowman Lake Recreation Area

The Bowman Lake Recreation Area consists of three project reservoirs – Bowman Lake, Sawmill Lake and Faucherie Lake – all along Canyon Creek.

2.3.3.1 Bowman Lake

Bowman Lake lies in the western portion of the Project Area at an elevation of 5,562 feet. Access to Bowman Lake occurs via two routes. From the south, access to the reservoir is by the Bowman Lake Road (Forest Route 18) leading north from State Highway 20, which is partially paved. The first six miles of the road are paved, and the remaining ten miles to the reservoir are gravel and dirt. From the east, Bowman Lake is reached by driving approximately six miles from Jackson Meadows Reservoir along Graniteville Road (Nevada County Road 956) and Meadow Lake Road (Nevada County Road 843). At maximum water surface elevation, Bowman Lake is 827 acres with 7.6 miles of shoreline (NID 2010). The north, west, and east shorelines of Bowman Lake have a "Semi-Primitive Motorized" ROS classification; and the south shore is classified as "Semi-Primitive Non-motorized" (USDA 1990). The primary recreation activities at the reservoir are camping, boating, fishing, hunting, and picnicking. The only developed facility at Bowman Lake is the Bowman Lake Campground located on NID land. The remaining recreation opportunities are dispersed along the shoreline along Bowman Lake Road from the dam to the inflow of Jackson Creek on either NID or NFS land. In 2009, the peak recreation use estimate was 5,372 RDs comprised mostly of overnight use (4,723 RDs).

Facilities on NID Land
Bowman Lake Campground is the only developed recreation facility at Bowman Lake, and is located on NID land. In addition, six designated recreation sites are also located on NID land ("Semi-Primitive Motorized" ROS class) along the north shoreline of Bowman Lake.

Bowman Lake Campground. NID owns Bowman Lake Campground, a rustic campground near the Milton-Bowman Diversion tunnel outlet at the northeastern end of the reservoir that is managed by the Forest Service. The facility has a vault toilet, a camping information sign, and consists of 11 campsites each with a fire ring, and picnic table. A gravel road extending down from the campground to the shoreline serves as a boat launch ramp. Another gravel access road just east of the dam serves as a second informal boat launching ramp. The rustic campground is in fair condition with many aging and dated site amenities; and the campground is not designed to accessible guidelines (NID 2008). Currently, the campground does not require a fee.

Other Designated Recreation Sites. In addition, six other designated recreation sites (5 camping areas totaling 9 primitive campsites and an informal boat launch) are located on NID land along the north shoreline from the Jackson Creek inflow to the dam. The designated recreation sites consist only of a steel fire ring, which are generally in good condition; and none of the sites are designed to accessibility (FSORAG) standards. All of these sites are accessed via Bowman Lake Road and provide camping and/or day use opportunities along the shoreline.

Facilities on NFS Land
Four other designated recreation sites (5 primitive campsites) are located on NFS land ("Semi-Primitive Motorized" ROS class) along the north shoreline of Bowman Lake. All of these sites are accessed via Bowman Lake Road and provide camping and day use opportunities along the shoreline. These designated recreation sites consist only of a steel fire ring, which are generally in good condition; and none of the sites are designed to accessibility (FSORAG) standards.

2.3.3.2 Sawmill Lake

Sawmill Lake is located in the central portion of the Project Area at an elevation of 5,860 feet. Access to the reservoir is from the north end of Bowman Lake via Nevada County Road 843 and Forest Road 843-37 leading southeast along Canyon Creek from Jackson Creek Campground. The north side of Sawmill Lake is classified as "Roaded Natural" in the Forest Service ROS classification system, and the south side is classified "Semi-Primitive Non-motorized" (USDA 1990). At maximum water surface elevation, Sawmill Lake is 113 acres with 2.6 miles of shoreline (NID 2010). Sawmill Lake is classified by Nevada County as a "small lake" and has a 10 mph speed limit (Nevada County 2004). CDFG stocks rainbow trout in the reservoir once a year in conjunction with their "free fishing day" program (CDFG 2007).

No developed campground or day use facilities are located at Sawmill Lake; however, several designated recreation sites (steel fire rings present) and undeveloped recreation sites (user-created rock fire rings present) are located in four general areas along the northern shore of the reservoir from the inflow of Canyon Creek downstream to the dam – Peninsula, East-North Shore, North Shore and Dam sites. In 2009, the peak recreation use estimate was 3,547 RDs comprised mostly of overnight use (3,206 RDs).

Facilities on NID Land
Two other designated recreation sites (camping areas) are located on NID land ("Roaded-Natural" ROS class) along the north shore of Sawmill Lake – North Shore and Dam sites. The North Shore site consists of a cluster of 13 dispersed campsites occur between the peninsula sites and the Sawmill Dam access road. This cluster includes seven steel fire rings/grills, including one site with a wood picnic table; and seven rock fire rings, including one site with a makeshift plywood table built into the trees. The steel fire rings are generally in good condition; and none of these sites are designed to accessibility (FSORAG) standards (NID 2008). Access to these sites occurs primarily along a user-created spur that winds through the trees parallel to the dispersed campsites (off Forest Service Road 843-37). General parking is not available but vehicles park between trees where possible.

The Dam site consists of a cluster of dispersed campsites in the general area of the Sawmill Dam, where eight distinct sites are located (three with steel fire rings/grills and five with rock fire rings). The three steel fire ring/grills all overlook the dam and lower end of the reservoir. The steel fire rings are generally in good condition; and none of these sites are designed to accessibility (FSORAG) standards (NID 2008). Dispersed parking is available for as many as eight vehicles. The other five rock fire rings are set back from the reservoir near the outflow of Canyon Creek.

Facilities on NFS Land
Two undeveloped (dispersed) recreation sites (camping areas) are located on NFS land ("Roaded-Natural" ROS class) along the north shore of Sawmill Lake – Peninsula and East-North Shore sites. At the Peninsula site, as many as nine rock fire rings are located along the reservoir near the inflow of Canyon Creek to the large peninsula on the north shore (Peninsula sites). The sites nearest the inflow consist of three large rock fire rings and are accessed via a rough four-wheel drive (4WD) spur road which provides parking for approximately 4 vehicles at

the end of the spur road. The sites near the peninsula consist of six additional rock fire rings are located on a peninsula overlooking the reservoir. These sites are also accessed via a rough 4WD spur road with dispersed parking for approximately eight vehicles.

The East-North Shore site is located near the road leading to Faucherie Lake (set back from the reservoir) that consists of several rock fire rings accessed via a rough 4WD spur road with dispersed parking for approximately two vehicles.

2.3.3.3 Canyon Creek (non-reservoir)

A single Project campground, Canyon Creek Campground, is located along Canyon Creek at an elevation of 6,010 feet on NFS land. The campground is situated approximately 1.1 miles downstream of Faucherie Lake and 0.7 mile upstream of Sawmill Lake. The campground is located on lands classified as "Roaded Natural" in the Forest Service ROS classification system.

Facilities on NID Land
None.

Facilities on NFS Land
Canyon Creek Campground. The rustic campground consists of 16 campsites, each with a picnic table and fire ring. Seven of the 16 campsites have animal-resistant food lockers. The campground also has a paved asphalt circulation road and two, double-unit vault toilets. Currently, the campground does not require a camping fee.

2.3.3.4 Faucherie Lake

Faucherie Lake lies in the southern portion of the Project Area at an elevation of 6,123 feet. Access to the reservoir is by Forest Service Road 843-37 leading southeast two miles from Sawmill Lake. At maximum water surface elevation, Faucherie Lake is 150 acres with 2.4 miles of shoreline (NID 2010). The primary recreation activities at the reservoir are camping, picnicking, boating, fishing, swimming, hiking, and backpacking. The Faucherie Lake area is classified primarily as "Semi-primitive Non-motorized" in the Forest Service ROS classification system (USDA 1990). However, the northern edge of the reservoir is managed for "Roaded Natural" objectives where the developed recreation sites, dam, and boat ramp are located. In 2009, the peak recreation use estimate was 4,671 RDs comprised mostly of overnight use (3,534 RDs).

Facilities on NID Land
All of the developed recreation facilities are located on NID land, including Faucherie Lake Group Campground and Day Use and Boat Launch facilities.

Faucherie Lake Group Campground. Faucherie Lake Group Campground is located on the north shore of the reservoir, and accommodates 50 PAOT at two group sites (25 PAOT per site). NID received a state grant under the CDWR's Davis-Grunsky Act for the construction of the group campground facility. Overall, the group camp consists of eight picnic tables, two steel fire rings, six animal resistant food lockers, three animal-resistant trash receptacles, one animal resistant

recycling receptacle, and a single, two-unit toilet building. On-site parking accommodates six VAOT (3 VAOT at each group site); however, additional parking is available at the day use and boat launch parking area. Each group site has four to five tent pads available. In addition, the sites also have several user-created rock fire rings dispersed throughout the area. The campground is not designed to accessible guidelines (NID 2008).

Overall, the group facility is in fair condition. The steel fire rings and trash/recycling receptacles are new and in good condition; however, the tables and toilet building are in poor condition with splitting and weathered wood. The campground not designed to ADA Accessible Guidelines (ADAAG) for Buildings and Facilities (NID 2008).

Faucherie Lake Day Use and Boat Launch. The facility consists of an informal single-lane boat ramp, double-unit vault restroom, and a parking area (14 VAOT). The paved facility road and restroom are in poor condition (old structures showing sings of aging), whereas the primitive gravel parking area is in fair condition but lacks vehicle barriers and parking signage. This rustic facility is inaccessible to persons with disabilities (NID 2008).

In addition, the road across the dam leads to an undeveloped and informal gravel parking area (approximate capacity of 25 VAOT including along the road across the dam) and boat launch.

Facilities on NFS Land
None.

2.3.4 Dutch Flat Recreation Area

The Dutch Flat Recreation Area consists of three project impoundments - Dutch Flat No. 2 Forebay, Dutch Flat Afterbay and Chicago Park Forebay.

2.3.4.1 Dutch Flat No. 2 Forebay

Dutch Flat No. 2 Forebay lies in the western portion of the Project Area at an elevation of 3,330 feet outside of the Tahoe National Forest. Access to the forebay occurs by two routes. The most direct and mostly paved access is via Diggins Hill Road leading north approximately two miles from the town of Dutch Flat. More remote access is also available from the north, west and east via Lowell Hill Road. At maximum water surface elevation, Dutch Flat No. 2 Forebay is 8 acres with roughly 0.5 miles of shoreline. Dutch Flat No. 2 Forebay does not have any developed recreation facilities, but provides day use opportunities including shoreline fishing, picnicking, biking, and hiking/walking. In 2009, the peak recreation use estimate was 381 RDs comprised almost entirely of day use (318 RDs).

Facilities on NID Land
The forebay does not have any developed recreation facilities. The undeveloped recreation sites along the shoreline within the FERC boundary are all located on NID land.

Facilities on NFS Land
None.

2.3.4.2 Dutch Flat Afterbay

Dutch Flat Afterbay lies in the western portion of the Project Area at an elevation of 2,740 feet outside of the Tahoe National Forest. Access to the afterbay occurs by two routes. The most direct, paved access is via Diggins Hill Road leading north less than one mile from the town of Dutch Flat. More remote access is also available from the north, west and east from Lowell Hill Road – less than two miles from the junction with Diggins Hill Road. At maximum water surface elevation, Dutch Flat Afterbay is 38 acres with roughly 1.9 miles of shoreline. Dutch Flat Afterbay does not have any developed recreation facilities; however, the afterbay offers undeveloped roadside parking area and an informal launch that provide visitors with access to the shoreline. The afterbay provides opportunities for shoreline and boat fishing, picnicking, and swimming. Land ownership at these five access areas varies between NID, Pacific Gas and Electric Company (PG&E), BLM and private lands. In 2009, the peak recreation use estimate was 973 RDs comprised mostly of day use (823 RDs).

Facilities on NID Land
The undeveloped recreation sites on NID land include a parking area and informal launch ramp located adjacent to where the Dutch Flat Penstock enters the afterbay. The informal launch ramp provides vehicle access to the shoreline and provides a launch for small watercraft.

Facilities on NFS Land
None.

Facilities on BLM Land
On the north side of the afterbay, the roadside areas where some visitors park beyond the dam for approximately on-quarter mile are located on BLM land.

Facilities on PG&E Land
The undeveloped recreation sites on PG&E land include an undeveloped shoreline access area on the south shoreline behind a locked gate leading to the non-Project, PG&E Dutch Flat No. 2 Powerhouse. This area provides pedestrian access to the shoreline.

Facilities on Private Land
A single undeveloped recreation site is located on private land on the south side of the afterbay.

2.3.4.3 Chicago Park Forebay

Chicago Park Forebay lies in the western portion of the Project Area at an elevation of 2,716 feet. Access to the reservoir is by foot or non-motorized vehicle behind locked gates. Vehicle access to the forebay ends near Chicago Park Powerhouse via Chicago Park Powerhouse Road. Access to the upper end of the forebay, by way of vehicle, is possible via Lowell Hill Road from the north.

At maximum water surface elevation, Chicago Park Forebay is 7 acres with roughly 0.7 miles of shoreline. Chicago Park Forebay does not have any developed recreation facilities, but provides day use opportunities including shoreline fishing, picnicking, biking, and hiking/walking. In addition, undeveloped recreation occurs in the powerhouse area at a large gravel bar where the Chicago Park Powerhouse Road Bridge spans the Bear River. Both of these locations are on BLM land. In 2009, the peak recreation use estimate was 4,103 RDs, which was almost entirely day use (3,517 RDs) and attributed primarily to the undeveloped area by the Chicago Park Powerhouse bridge.

Facilities on NID Land
None. However, undeveloped recreation occurs on a portion of the bridge area land (adjacent to the Bear River and Steephollow Creek), which is located on NID land.

Facilities on NFS Land
None.

Facilities on BLM Land
None. However, undeveloped recreation occurs along the Chicago Park Forebay shoreline and a portion of the bridge area, which is located on BLM land.

2.3.5 Rollins Reservoir Recreation Area

The Rollins Reservoir Recreation Area only contains Rollins Reservoir.

2.3.5.1 Rollins Reservoir

Rollins Reservoir is at an elevation of 2,171 feet and is located near Grass Valley outside of the TNF. General access to the reservoir occurs from Highway 80 via Highway 174 or Rollins Lake Road, or from Highway 49/20 in Grass Valley via Highway 174. Access to Orchard Springs Recreation Complex is via Highway 174 then Orchard Springs Road. Access to Greenhorn Recreation Complex is via Highway 174 then Greenhorn Access Road. Access to Peninsula Recreation Complex is via Highway 174 then You Bet Road. Access to Long Ravine Recreation Complex is via Highway 174, Rollins Lake Road and the Old You Bet Road.

At maximum water surface elevation, Rollins Reservoir is 788 acres with 19 miles of shoreline. The maximum speed limit unless otherwise noted is 50 mph from sunrise to sunset and 10 mph otherwise. A 5-mph speed limit is in effect for designated launch and mooring areas as well as fishing areas; and boats are prohibited in designated swimming areas (Nevada County 2004). Fishing is available from a boat or shore for a wide variety of trout and warm water species. CDFG stocks rainbow trout every other week from February through May (CDFG 2007). Land based activities include camping, hiking, and picnicking. In 2009, the peak recreation use estimate was 115,455 RDs comprised mostly of overnight use (70,389 RDs).

Facilities on NID Land

Four recreation complexes are located at Rollins Reservoir, each of which includes a campground, boat launch and day use area(s). These complexes include Orchard Springs, Greenhorn, Peninsula, and Long Ravine - all on NID land (Table 2.3-5). In all, these campgrounds provide 332 developed campsites that offer different camping opportunities for tents, RVs, and small wood/log cabins. Each campground complex offers a boat launching facility. Orchard Springs, Greenhorn and Long Ravine campgrounds offer a predominantly high-density camping experience with minimal space and screening between campsites, and many sites grouped together in tight loops/areas. Peninsula Campground offers a low-to-medium density camping experience at three major loops with moderate screening between sites in a predominantly forested setting. Typically, all the campgrounds, except Peninsula Campground, are open year-round. NID received financial assistance under the CDWR's Davis-Grunsky Act for the initial construction of all four of these campground facilities, as well as California Boating and Waterways grants for construction of the existing boat launching facilities (parking areas, launch ramps, and restrooms). The level of accessibility is roughly the same at all four recreation complexes. Each of the campgrounds and picnic areas (and swim beaches, where applicable) do not have any accessible features; however, the boat launching facilities (upgraded in the late 1990s with California Department of Boating and Waterways grants) each have a universally accessible restroom and parking spaces. The boat launch ramps and docks are not designed to ADAAG.

Table 2.3-5. Rollins Reservoir developed recreation facilities located on NID land.

Recreation Facility	Open Season	Manager	Boat Launch	Parking	Picnic sites	Camp sites	PAOT Capacity
Orchard Springs	Year-round	NID	2-lane concrete	150	---	101	unknown
Greenhorn	Year-round	NID (concessionaire)	2-lane concrete	143	3	79	unknown
Peninsula	Apr 1-Sept 15	NID (concessionaire)	2-lane concrete	50	unknown	67	unknown
Long Ravine	Year-round	NID	2-lane concrete	72	---	85	Unknown

Source: NID 2010.

The condition and level of accessibility at each of the developed recreation complexes on NID land at Rollins Reservoir are detailed in Table 2.3-6 following the description of the complexes.

Orchards Springs Recreation Complex. Orchard Springs Campground consists of 101 campsites, four flush toilet buildings, a boat launching facility, two beach areas and a common area with a stage and beach volleyball court. In addition, the campground includes a marina, general store, restaurant and boat rentals. The campsites provide tent, recreational vehicle (RV) and cabin camping opportunities in either a forested or waterfront setting.

Greenhorn Recreation Complex. Greenhorn Campground consists of 79 campsites, three picnic units, a boat launch facility and two flush toilet buildings; as well as a beach volleyball court and swimming beach. In addition, the facility offers a general store and arcade with restroom facilities.

Peninsula Recreation Complex. Peninsula Campground consists of 67 campsites, a boat launching facility, swimming beach (with volleyball court and horseshoe pit), and four toilet

buildings (three flush/one vault). In addition, the campground offers a general store and boat rentals. Camping opportunities include tents, RV and cabins at the boat launch facility, in a forested setting and atop a bluff overlooking the reservoir. Peninsula Campground is open from April 15 to September 15.

Long Ravine Recreation Complex. Long Ravine Campground consists of 85 campsites, four flush toilet buildings (including showers at two toilet buildings), a boat launching facility and a beach. The facility also offers a beach, general store and grill, boat rentals and gas. The campsites provide tent, RV and group camping opportunities along the shoreline and in a forested setting away from the reservoir.

Table 2.3-6. Condition and level of accessibility (based on FSORAG) at the recreation facilities at Jackson Meadows Reservoir located on NFS land.

Facility	Parameter	Rating	Details / Comments
Orchard Springs Recreation Complex	Condition	Fair to Poor	The restrooms in the main campground are older designs but updated; and all the amenities at the launching facility are in good condition (parking, roads, restroom and ramp). However, the campsite amenities throughout the campground are falling apart, particularly the wood picnic tables, wood/metal tables, and the steel fire rings and pedestal grills. All are showing signs of aging (split wood, corroding steel, and eroding concrete).
	Accessibility	Partially Accessible	The main campground does not provide any accessible features. Only the launching facility has a universally accessible restroom with associated parking spaces. The primary activities offered (camping, swimming and boating) are not accessible to disabled persons.
Greenhorn Recreation Complex	Condition	Fair to Poor	The launch facility restroom is in good condition; however, the remaining campground amenities (tables, fire rings and grills) are mostly in poor condition. Half of the tables are metal frames with wood tops and benches and are in good condition, but the other half are all wood and in poor condition (splitting wood, holes and burn damage). The water spigots are functional and good condition. The wood tables at the picnic area are in poor condition while the pedestal grills are in fair condition.
	Accessibility	Partially Accessible	The main campground and picnic area does not provide any accessible features. Only the launching facility has a universally accessible restroom with associated parking spaces. The primary activities offered (camping, picnicking and boating) are not accessible to disabled persons.
Peninsula Recreation Complex	Condition	Fair	The restroom buildings are in good condition with clean, well-kept interiors. The campsite amenities are showing signs of aging, as most tables are splitting/rotting and the older concrete/steel grill units (majority of rings) have cracked and broken concrete bases and are overall in poor condition. The paved vehicle spurs are generally in good condition with only a few spurs at "The Point" eroding away at the edges (steep terrain); and the wood vehicle barriers are in place, but showing signs of splitting and rotting at most sites. The roads and parking area are in good condition with few spots of cracking or upheaval. Boat ramp and dock are in good condition.
	Accessibility	Partially Accessible	The main campground does not provide any accessible features. Only launching facility has a universally accessible restroom with associated parking spaces. The primary activities offered (camping, swimming, boating) are not accessible to disabled persons.
Long Ravine Recreation Complex	Condition	Poor	The campground and launching facility buildings are in good condition (bathrooms and showers). The remaining campsite amenities (tables, fire rings, pedestal grills and water spigots) all show signs of aging (bent, damaged and split wood, spigots low to ground). The only trash receptacles are basic aluminum cans that are loosely stationed throughout the site. The launch facility campsites are in very poor condition. The paved spurs in the main campground are eroding at the edges and the barriers are falling apart and loose in areas.
	Accessibility	Partially Accessible	The main campground does not provide any accessible features. Only the launching facility has a universally accessible restroom with associated parking spaces. The primary activities offered (camping, picnicking and boating) are not accessible to disabled persons.

Source: NID 2008.

Facilities on NFS Land
None.

Facilities on BLM Land
None.

Page Left Blank

SECTION 3

RECREATION FACILITY MEASURES

This section describes the recreation facility measures that will be implemented by NID for the Project during the new license. This section is divided into three sub-sections that includes: 1) recreational facility annual operational maintenance and activities; 2) recreational facility major rehabilitation; and 3) capital improvements (minor and major).

As a benchmark for major rehabilitation and capital improvements over the term of the new license, NID has developed Existing Site Plans for each of the existing Project recreation facilities (Attachment B). An Existing Site Plan is a schematic in concept that illustrates the layout, location, size, shape and relationship between existing recreation facilities and features. The Existing Site Plan shall not include detailed design elements, such as construction documents, specifications, etc. The document shall be used as an over-all master plan for maintenance, modification and adaptation to the changing needs of the recreating public and the physical environment.

3.1 Recreational Facility Operational Maintenance

3.1.1 Operational Maintenance Responsibility

NID shall be responsible for the annual maintenance, rehabilitation, and replacement of all the Project recreational facilities at Jackson Meadows Reservoir, Milton Diversion Impoundment, Bowman Lake, Faucherie Lake, Sawmill Lake, Canyon Creek Campground, and Rollins Reservoir. Importantly, NID shall solely operate and maintain all the Project recreation facilities. NID may contract with concessionaires for the administration, operation and maintenance of the Project's recreation facilities[4]. In this Plan, the party in charge of the daily administration, operation, and maintenance shall be referred to as the Operating Party.

User fees are used for operation and maintenance of the Project or, where a concessionaire operates the facilities, some of the receipts from user fees are may be used by the concessionaire to pay for operation of the facilities. NID is responsible for funding operational maintenance, rehabilitation (major or minor), and capital improvements. NID may choose to contract with the TNF for completion of work items such as major rehabilitation (Section 3.2), capital improvements (Section 3.3), or unexpected repair work on recreational facilities on NFS land; however, NID shall still be responsible for funding such work.

[4] Presently, NID has a lease agreement with a concessionaire to operate and maintain two of the recreation complexes at Rollins Reservoir (Greenhorn and Peninsula). Per the lease agreement, the concessionaire is responsible for the operation and maintenance of the campground and some major rehabilitation of the basic site features, such as tables, fire rings, vehicle spurs and barriers, and trash receptacles. NID is responsible for the larger scale major rehabilitation items such as roads, restrooms, and water systems.

3.1.2 Operational Maintenance Activities

Operational maintenance activities keep permanent assets in an acceptable condition and include repairs, painting, replacement of minor parts and minor structural components. Operational maintenance, or reconditioning, neither materially adds to the value of the property nor appreciably prolongs its life. Operational maintenance excludes activities aimed at expanding the capacity of an asset or otherwise upgrading it to serve needs different from, or significantly greater than those originally intended. The work serves only to keep the facility in an ordinary, efficient operating condition.

Examples of regular or routine operational maintenance activities include, but are not limited to interior painting, repair of broken windows, light bulb replacement, cleaning, unplugging drains, greasing, servicing, inspecting, oiling, adjusting, tightening, aligning, and sweeping. Maintenance activities may include work needed to meet applicable laws, regulations, codes, and other legal direction (such as compliance with the ADA) as long as the original intent or purpose of the fixed asset is not changed.

Table 3.1-1 provides a detailed description of the operational maintenance activities required of the party responsible for operational maintenance at the recreation facilities. The Operating Party may contract for the necessary personnel, equipment, and/or materials in order to achieve the maintenance standards. At Project recreation facilities located at Jackson Meadows Reservoir, Milton Diversion Impoundment, Bowman Lake, Faucherie Lake, Sawmill Lake, and Canyon Creek Campground, the standards will be consistent with the cleaning and policing requirements state within the "Cleaning Recreation Sites" USDA Forest Service, San Dimas Technology Development Center, August 1995 (SDTC 9523-1206) and meet the Recreation Sites National Quality Standards, February 5, 2002.

Table 3.1-1. Required operational maintenance activities at developed recreation facilities on the Yuba-Bear Hydroelectric Project.

Maintenance Activity	Frequency
General. Maintain all project recreation facilities in good working order. If a structure is deemed to be unsafe, it will be closed until repairs are completed. Once a facility has been rehabilitated to provide for accessibility, clear floor space surrounding constructed features, graded tent pads, and ORAR shall be maintained. Developed sites will be free of litter, human and domestic animal waste. Straighten and replace as needed vehicle barriers and signs.	• During the peak season (Memorial Day – Labor Day holiday weekends), all facilities will be inspected on a regular basis (as much as several times per week depending upon the type of structure & level of use).
Restrooms. Structures will be sanitary and maintained in good repair. If a structure is deemed in need of repair, it will be closed until repairs are completed. Keep toilet doors in operating and locking condition. Walkways and access routes to structures will be kept free of obstructions or excess vegetation. Restroom roofs will be maintained clear of debris. Maintain all restroom doors in operating condition. Vault restrooms will be pumped when ¾ full. Grade areas where vault toilets are placed in low spots to keep snowmelt from filling the vaults.	• During the peak season (Memorial Day – Labor Day holiday weekends), all facilities will be inspected on a regular basis (as much as several times per week depending upon the type of structure & level of use). • During the off peak season (January up to Memorial Day weekend, after Labor Day weekend-December) when facilities are open, the facilities will be inspected at regular, but less frequent intervals as the peak season concurrent with lower use. • Maintain restroom roofs clear of debris prior to opening & as needed. • Repair doors & moving parts as needed. • Vault restrooms will be pumped when ¾ full, & at the end of the season. • Grade area where vault restrooms in low places as needed.

Table 3.1-1. (continued)

Maintenance Activity	Frequency
Developed Boat Ramps. The developed boat ramp surfaces are to be kept in good, functional condition and free of debris.	• Developed boat ramps will be inspected for obstacles, deterioration, & other hazards daily while the boat launch facilities are open. • Maintenance & repair will be completed on an as-needed basis.
Boat Docks at Developed Boat Launch Facilities. Boat dock surfaces, hardware and other components (bumper strips, cleats, railings, etc.) will be maintained to provide safe and effective use.	• Boat docks will be inspected for wear, obstacles & damage on a daily basis while the boat launch facilities are open. • Maintenance & repair will be completed on an as-needed basis. • Boat docks will be lowered as needed as the season progresses to ensure the docks remain in the water & usable for launching/docking boats.
Developed Camp and Picnic Sites. These sites will be inspected for cleanliness, damage and vandalism. Tables will be sturdy and functional and painted. Displaced tables will be returned to designated location. Tables that may have "sunk" during winter due to snow loads will be brought up to the level of the surrounding ground and positioned on level ground. Grills and fire rings will be in good, functional condition. Developed sites will be free of litter and domestic animal waste. Nails, ropes, wire, etc. will be removed from trees whenever found. Fire rings will be kept free of litter and unburned material before used by a new user. Eliminate any rock fire rings or modifications in developed sites. Remove ashes from unauthorized fire rings/pits. Ashes will be disposed of in the proper waste receptacle and not scattered or piled at the site. Rocks removed should be turned burn side down.	• At Jackson Meadows & Rollins reservoirs, the developed camp & picnic sites will be inspected daily during the peak season (Memorial Day – Labor Day holiday weekends); & weekly or as needed during the remaining months the facilities are open to the public. • At Bowman, the developed camp & picnic sites will be inspected two times per week during the peak season (Memorial Day – Labor Day holiday weekends); & intermittently during the remainder of the year when the reservoirs are accessible before snow/winter arrives. At Faucherie lakes, the developed camp & picnic sites will be inspected weekly during the peak season (Memorial Day – Labor Day holiday weekends); & intermittently during the remainder of the year when the reservoirs are accessible before snow/winter arrives. • Ashes will be removed when fire pits are half full; and ashes will be disposed of in the proper waste receptacle and not scattered or piled at the site. • Maintenance & repair will be completed on an as-needed basis. • Return all displaced tables to designated locations prior to opening & within 1 week of discovery. • Paint wood picnic tables once every 3 years. • If tables have sunk during the winter due to snow loads, they will be brought up to the level of the surrounding ground and placed on level ground. • Once a facility has been rehabilitated to provide for accessibility, clear floor space surrounding constructed features, graded tent pads and ORAR shall be maintained.
Litter and Trash Collection. Receptacles shall be animal proof. The recreation areas and sites with trash containers will be kept clean. Garbage does not exceed the capacity of the containers. Recycling of all materials is encouraged. Remove all litter observed within site boundaries. Particular attention should be paid to removal of observed glass, bottles, cans and similar objects that might cause injury to site visitors.	• Trash containers at developed recreation sites will be emptied at a frequency that does not encourage animal encroachment, is not overflowing, and does not emit offensive odors when the recreation facilities are open. • Two to four yard dumpsters will be emptied as needed, but at least once per week during the peak season (Memorial Day – Labor Day holiday weekends); and during the remainder of the year, dumpsters will be emptied as needed until the sites/facilities are closed. In addition, at the end of the recreation season the dumpsters will be emptied when the sites/facilities are closed. • Litter within site boundaries (not in trash containers) will be collected daily, but not while sites are occupied. • Remove graffiti within 48 hours of discovery or notification.
Developed Recreation Facility Roads (Roads within Recreation Facility Footprint) and Recreation Facility Access Roads (Roads Providing Exclusive Access to a Recreation Facility) and Pavement. The roads and pavement as part of a developed recreation site/facility will be maintained in good, passable condition. If a road is deemed unsafe for public passage, the road shall be closed until the repair is completed. Cones and limbs will be kept off roadways and walkways for public safety.	• Recreation site/facility access and circulation roads will be inspected daily or weekly to ensure the surfaces are in good, passable condition. • Minor damage to roads and/or pavement will be repaired as needed. Temporary repairs or precautionary measures will be performed (such as temporary filling of potholes, re-routing vehicle traffic, providing cautionary signage/identification, etc.) during the current year of detection, if practical. • Major damage to roads and/or pavement will be scheduled for repair, if needed, in the year following the detection of the damage. • Where such damage to a road or pavement precludes public access or safe access to a recreation site and alternative access cannot be reasonably provided, the recreation site will be closed and the damage will be assessed and repaired as soon as possible depending upon the extent and cost of the repair.

Table 3.1-1. (continued)

Maintenance Activity	Frequency
Signs, Information Kiosks, Bulletin Boards and Fee Stations. Information kiosks and boards will look professional, uncluttered, and contain appropriate current/seasonal information. Signs, information kiosks/boards, site markers and fee stations are well maintained and neatly arranged. Replacement of standard Forest Service signs is the responsibility of the Forest Service. Homemade signs or posters are not allowed. Additional signs should be reviewed by the authorized Operating Party as to location, design, size, color, and content. Commercial advertising is not allowed.	• At Jackson Meadows and Rollins reservoirs, signs, information kiosks/boards and fee stations will be inspected daily during the peak season (Memorial Day – Labor Day holiday weekends); and weekly or as needed during the remaining months the facilities are open to the public. • At Bowman and Faucherie lakes, signs, information kiosks/boards and fee stations will be inspected weekly during the peak season (Memorial Day – Labor Day holiday weekends); and intermittently during the remainder of the year when the reservoirs are accessible before snow/winter arrives. • Inspect all signs annually prior to July 1st and paint as needed. Depending upon the sign material, other treatments may be needed instead of painting. • Maintenance and repair will be completed on an as-needed basis. • At the beginning of each recreation season, and as needed throughout the season, replace, reset, straighten, and reinstall barriers within all project recreation sites.
User Conduct and Law Enforcement. The Operating Party shall make a good-faith effort to obtain user compliance with established rules and regulations for the facilities.	• Contact with the public to inform them of the rules and regulations by a "good host" approach shall occur daily as visitors arrive at the facilities. • Placing and maintaining conspicuous signs throughout the facilities shall be done regularly throughout the open season.
Recreation Use Data Collection. The Operating Party shall maintain use data in compliance with the monitoring set forth in Section 6.0.	• Details of the frequency and scope of the data collection is set forth in Section 6.0.

Annual operational maintenance includes those activities that are expected to occur on an annual or semi-annual schedule. Beginning at license issuance, the Operating Party shall adhere to the schedule of annual maintenance provided below in Table 3.1-2.

Table 3.1-2. Annual maintenance activities required of the Operating Party at the Yuba-Bear Hydroelectric Project recreation facilities.

Maintenance Activity	Target Date
Straighten all vehicle barriers and signs.	Prior to opening day
Paint interior of all restrooms with paint consistent with restrooms in the area.	At end of 3 year period
Paint or stain all bulletin boards with paint/stain consistent with others in the area	At end of 3 year period
Paint entrance signs with paint consistent with other signs in the area.	At end of 3 year period
Paint or stain all exterior wood surfaces excluding roofs, of all restrooms with paint consistent with others in the area).	At end of 3 year period
Paint all picnic tables with paint consistent with other tables in the area.	At end of 3 year period
Install and remove boat dock.	Beginning and end of open season, unless launching conditions are unsafe.
Winterize and de-winterize water supply system.	Beginning and end of operating season
Pump vault toilets.	As needed (i.e., ¾ full), but at least at end of open season.
Conduct state and local required water quality testing of water supply system.	Monthly during operating season or as otherwise required by law.
Remove or winterize all signs at end of season and re-install at beginning of next season.	Annually
Replace, reset, straighten, and reinstall all signs within a recreation facility.	As needed during the operating season
Assess the condition of the recreation site access and circulation roads to ensure roads are in safe and good, passable condition for upcoming season. On NFS land, NID and Forest Service will jointly inspect the roads.	Prior to opening day, if feasible; otherwise as early as possible during the operating season.

3.1.3 Administrative and Other Operational Responsibilities

3.1.3.1 Campground Occupancy Data Collection

To provide accurate facility occupancy at each of the Project developed campground facilities, the Operating Party must: 1) collect and record paid fee receipts daily for each individual campground on the Project; and 2) report the facility occupancies annually to NID at fee sites only. The annual reports shall include a breakdown for each individual campground of the number of sites occupied by weekday, non-holiday weekend days, and holiday days for each month of the open season. In addition, the raw data should be recorded in an electronic format so that the data may be used by NID for additional analysis as needed annually or for review of occupancy trends over the course of the license.

3.1.3.2 User Fees

The Operating Party shall be responsible for collecting and handling all Facilities user fees, and for compliance with the annual fee schedule. Fee schedules will be reviewed annually as part of the Annual Coordination Meeting (refer to Section 5.1).

At recreation facilities on NFS land, subject to issuance of the new FERC license, fees for family campsites, double-unit campsites, RV campsites, and boat-in campsites will be set at amounts that are commensurate with fees charged at similar facilities in the TNF. NID may charge a reasonable fee at campgrounds, day use areas, and boat launches subsequent to issuance of the new FERC license to meet NID's capital improvement and maintenance costs, as provided in the Federal Power Act (18 CFR § 2.7).[5] In addition, any changes in user fees at facilities on NFS land will be approved by the Forest Service. Camping, parking, and boat launching shall be restricted to designated-use sites within a developed recreation facility or a designated campsite. NID will likely provide opportunities for season passes. At this time, NID will charge user fees at all Project recreation facilities according to the fee schedule by type of recreational facility in Table 3.1-3.

Table 3.1-3. NID's proposed fee schedule for recreation facility usage by type of facility.

Type of Fee	Fee Description	Fee Amount
Camping Fees	Single campsite - tent only with one vehicle included	$25 per night
	Double campsite - tent only with two vehicles included	$50 per night
	RV campsite - one vehicle and dump station fee included	$30 per night
	Group campsite - 25 PAOT (three vehicles included)	$85 per night
	Group campsite - 50 PAOT (five vehicles included)	$150 per night
	Primitive campsite (one vehicle included)	$20 per night
	Extra vehicle per campsite	$10 per vehicle/night
	Extra watercraft	$6 per night
	Pet	$3 per night
Day Use Fees	Day use entry - boat launch	$13 per boat
	Day use entry - canoes/kayaks	$9.25 per craft
	Day use entry – per vehicle	$6.50 per vehicle
	Pets	$3 each

[5] "The Commission will not object to the licensee and operators of recreational facilities within the boundaries of the project charging reasonable fees to users of such facilities in order to help defray the cost of constructing, operating, and maintaining such facilities." (18 CFR § 2.7).

3.1.3.3 Length of Stay

A 14-consecutive day stay limit at all the campsites shall be enforced by the Operating Party. Use is limited to existing designated campsites unless camping is permitted at non-designated or dispersed sites. Occupancy of family campground units shall be limited to six persons, or immediate family, and a maximum of two vehicles per unit. Occupancy of double-unit campsites shall be 12 persons and a maximum of 4 vehicles.

3.1.3.4 Operating Season

The Facilities shall remain open with all services provided by the Operating Party from at least Memorial Day weekend through Labor Day weekend (peak season), weather permitting. Select facilities may remain open beyond this typical operating season on a case-by-case basis. Outside of the operating season, all necessary closing and opening preparations, and any additional maintenance and repairs that were not possible during the operating season, shall be performed by the Operating Party. Until first snow closes the Facilities, the Operating Party shall routinely visit the Facilities to prevent vandalism. During the winter, the Operating Party shall post information in a conspicuous location to advise the public that the facilities are closed.

3.1.3.5 Other Fees

At facilities on NFS land, the Operating Party may sell firewood from the campground host campsite at a reasonable fee similar to fees at similar to other recreation sites on the TNF. Said wood shall be purchased, cut and split by the Operating Party from private sources, or as a result of hazard tree removal, unless otherwise agreed to by NID or by NID and the Forest Service at facilities on NFS land.

The Operating Party may also, as a public service, sell TNF maps at the same price at which Forest Service offers these maps. NID may also sell maps of the Project recreation facilities and general Project area at a price reflecting its cost to produce and distribute. Examples of such maps include detailed campground layout maps, maps of the recreation area with trailheads or special interest features, etc.

The Operating Party may charge a fee per extra vehicle (more than one) for family campsites and at double-unit campsites (more than two). The intent is not to increase revenue, but to discourage campers from crowding spurs designed for one (or two) vehicles only.

At facilities on NFS land, all fee schedules must be approved by NID and the Forest Service prior to each operating season. No other services, products, etc. shall be sold on-site or off-site by either NID or the Forest Service in conjunction with the facilities on NFS land without prior approval from both NID and Forest Service.

3.1.3.6 Other Structures

The Operating Party shall not build, construct, or maintain any structure not specifically included in the list of equipment covered under the new FERC license unless approved by NID; and by both NID and the Forest Service on NFS land.

NID may use all NFS roads to operate the Facilities. Should NID's operation result in any undue wear or damage to NFS roads, NID shall be responsible for the reasonable cost to repair the road. Should wear or damage be caused by Forest Service approved timber removal operations, the Forest Service shall be responsible for the cost of any necessary repairs.

3.1.4 Quagga/Zebra Mussel Prevention

NID shall follow all regulations as set forth by the recent California legislation (Assembly Bill 2065) and any future legislation at all Project reservoirs. This bill adds to the CDFG Code a requirement that owners and managers of reservoirs must assess the vulnerability of their reservoirs for the introduction of non-native dreissenid mussel species (i.e., quagga and zebra mussels) and to develop and implement a program designed to prevent the introduction of these mussel species (State of California 2008).

Further, NID identifies aquatic invasive species Best Management Practices for prevention guidelines to be implemented within the FERC Project Boundary at Project reservoirs, including Quagga/Zebra mussel prevention in NID's Non-Native Invasive Plant Management Plan (Section 2.3, Aquatic Invasive Species Prevention Guidelines).

3.2 Recreational Facility Major Rehabilitation

This section identifies what and how NID will rehabilitate and replace the existing Project recreation facilities. Rehabilitation includes reconditioning or replacing an existing fixed asset or any of its components in order to restore the functionality or life of the asset. Replacement is the substitution or exchange of an existing fixed asset or component with one having essentially the same capacity and purpose. The decision to replace or rehabilitate a fixed asset or component is usually reached when replacement is more cost effective or more environmentally sound. Replacement of an asset or component usually occurs when it nears or has exceeded its useful life.

NID shall be responsible for the full cost for major rehabilitation (or replacement) of existing recreation facilities listed in Table 1.1-3 as well as any improvements completed as part of this Plan (unless otherwise stated). NID shall be responsible for performing all needed rehabilitation activities through the provision of necessary personnel, equipment, materials, and management. NID shall be responsible to replace/rehabilitate recreation features currently existing at the recreation facilities. All Project campgrounds, picnic areas or other recreation sites being constructed or reconstructed on public land will fully comply with the applicable section (at the time of design) of the Americans with Disabilities Act Accessibility Standards (ABAAS) and the

Forest Service Outdoor Recreation Accessibility Guidelines (FSORAG) and other applicable accessibility guidelines.

In addition, all new, rehabilitated, and reconstructed Project recreation facilities located on NFS land will meet Forest Service direction and applicable standards at the time of design, such as (but not limited to): FSORAG; Forest Service Manual (FSM) direction, Forest Service Handbooks (FSH); EM-7100-15; and other applicable direction. All new, rehabilitated and reconstructed recreation facilities located on BLM lands will meet BLM regulations, design and other applicable standards in place at the time of design and construction. The new, renovated or replaced facilities may be different from these requirements depending on topography, vegetation, cultural and archaeological resources, feasibility, practicality, preserving the primitive character of campgrounds, and the current design standards during the time of the Project design and construction.

Prior to major rehabilitation of a recreation facility, small-scale modifications or redesign may be made to the facility footprint to address the functionality of the facility and compliance of the facility with current design standards. The intent of redesigning is to enhance the existing facility without drastically altering the existing footprint or alignment. Existing constructed features will be incorporated into the new design whenever possible and will not be replaced with new constructed features if the features are in good condition and not approaching the end of its useful life. These constructed features will be replaced with features that meet current standards when the feature is at or near the end of its useful life. Examples of the types of redesign or small scale modifications include:

- Lengthening and/or widening parking spur widths and geometries (in light of the current vehicle use of the facility);
- Enlarging or shifting the location of the minority of camp or picnic sites to meet FSORAG or other applicable accessibility guidelines (such as providing additional clear floor space, site grading, and providing accessible routes);
- Re-aligning short segments of roads to improve vehicle circulation, but not to include wholesale re-alignment of the existing road;
- Relocating or repositioning restroom facilities to enhance function (particularly for vault toilets); and
- Relocating above ground water spigots, but not wholesale relocation of the underground water distribution system.

At Project recreation facilities on NFS land, NID shall provide “as-built” drawings (hard copy and electronic CAD format) for altered, improved, new construction, or expanded facilities when they are submitted to FERC once construction has been completed at the facility.

NID shall rehabilitate each recreation facility near the end of the useful life according to the following specifications.

3.2.1 Roads, Parking Areas and Campground Vehicle Spurs

As needed on a facility-by-facility basis, NID shall rehabilitate all existing roads and parking areas within the Project recreation facilities near the end of their useful life based on the findings during annual inspections. On NFS land, the method of rehabilitation shall be determined by a Forest Service engineer. However, the schedule for rehabilitation of any road may shift based on other major rehabilitation work within a recreation facility that may also impact the road system (e.g., if the water distribution system requires rehabilitation, then rehabilitating the road may make more sense when the water distribution work is done). All Project recreation facility roads and recreation facility access roads that NID is responsible for maintaining and rehabilitating as part of this Plan are identified in Table 3.2-1.

Specifically, NID shall utilize the following road, vehicle spur, and parking surface rehabilitation guidelines.

3.2.1.1 Parking Areas

Asphalt Parking Areas. NID shall: 1) repave or overlay and re-stripe the parking areas (including striping accessible designated parking spaces); 2) install vehicle barriers, where necessary; and 3) re-stripe and install an accessible parking sign at each accessible parking space. Where trash bins and pads exist in a parking area, NID shall re-install the trash bins and pads in a designated area adjacent to parking areas once rehabilitation activities are completed.

Gravel Parking Areas. NID shall: 1) re-grade and gravel the parking area; 2) re-install vehicle barriers, where necessary; and 3) install an accessible parking sign at each accessible parking space.

3.2.1.2 Campsite Vehicle Spurs

Asphalt Vehicle Spurs. NID shall: 1) repave or overlay the spur surface; and 2) install vehicle barriers, where necessary. In addition, where conditions dictate, NID shall repair or reconstruct the spur sub-grade.

Gravel Vehicle Spurs. NID shall: 1) re-grade and re-gravel the spur surface; and 2) re-install vehicle barriers, where necessary.

3.2.1.3 Recreation Facility and Access Roads

All of the Project recreation roads are detailed in Table 3.2-1 and displayed in Attachment A.

Asphalt Roads. At a minimum, NID shall 1) repave or overlay the road surface; and 2) install vehicle barriers, where necessary. Where trash bins and pads exist along a facility road, NID shall re-install the trash bins and pads once rehabilitation activities are completed.

In addition, prior to rehabilitation, NID on NID land or NID and the Forest Service on NFS land shall evaluate the condition of the road sub-grade and determine if the sub-grade requires repair or complete replacement as part of the rehabilitation work.

Other maintenance activities on asphalt roads (i.e., chip sealing, patching, slurry seal, or other maintenance treatments) will be determined and scheduled during the annual post peak season facility condition assessment.

Gravel Roads. NID shall 1) re-grade and re-gravel the road surface; and 2) re-install vehicle barriers, where necessary.

Native Surface (Dirt) Roads. NID shall 1) re-grade the road surface; and 2) re-install vehicle barriers, where necessary.

Road Widening. NID (on NID land) and NID and the Forest Service (on NFS land) will evaluate the potential to widen recreation facility roads when the roads are scheduled for rehabilitation. On NFS land, NID will widen the road when NID and Forest Service mutually agree that widening the road is feasible (see definition of "feasible" in the Glossary).

Table 3.2-1. Recreation facility roads and recreation facility access roads associated with the Yuba-Bear Hydroelectric Project recreation facilities[1].

Recreation Facility Name	Existing or Proposed Facility	Lands	Facility or Access Road	Road Name (if available)	Forest Service Route No. (if applicable)	Road Surface Type	Length (miles)	Road Start	Road End
JACKSON MEADOWS RESERVOIR									
East Meadow Campground	Existing	NFS	Facility	None	70-80-10	Asphalt	0.505	Gate to East Meadow Campground/private road leading to south	NA - loop road back to start
Pass Creek Campground	Existing	NFS	Facility	None	NA	Asphalt	0.305	Junction with Pass Creek Boat Launch road	NA - loop road back to start
Pass Creek Overflow Campground	Existing	NFS	Facility	None	301-65-1	Asphalt	0.150	Junction with Pass Creek Boat Launch road	NA - loop road back to start
Pass Creek Boat Launch	Existing	NFS	Facility	None	301-65	Asphalt	0.330	Junction with Henness Pass Road	Start of concrete boat ramp
Aspen Group Campground	Existing	NID	Facility	None	301-55	Asphalt	0.185	Junction with Henness Pass Road	NA - in-out road back to start
Aspen Picnic Area	Existing	NFS	Facility	None	301-52	Asphalt	0.215	Junction with Henness Pass Road	NA - loop road back to start
Sanitary Dump Station	Existing	NID	Facility	None	NA	Asphalt	0.110	Junction with Henness Pass Road	NA - loop road back to start
Woodcamp Access Road	Existing	NFS	Access	None	956-2	Asphalt	0.730	Junction with Graniteville Road	Start of Silvertip Group Campground facility road
Findley Campground	Existing	NFS	Facility	None	NA	Asphalt	0.295	Junction with Woodcamp Access Road (FS Route 956-2)	NA - loop road back to start
Fir Top Campground	Existing	NFS	Facility	None	NA	Asphalt	0.180	Junction with Woodcamp Access Road (FS Route 956-2)	NA - loop road back to start
Woodcamp Campground	Existing	NFS	Facility	None	NA	Asphalt	0.265	Junction with Woodcamp Access Road (FS Route 956-2)	NA - loop road back to start
Woodcamp Picnic Area	Existing	NFS	Facility	None	NA	Asphalt	0.180	Junction with Woodcamp Access Road (FS Route 956-2)	NA - loop road back to start
Woodcamp Boat Launch	Existing	NFS	Facility	None	NA	Asphalt	0.155	Junction with Woodcamp Access Road (FS Route 956-2)	NA - loop road back to start
Silvertip Group Campground	Existing	NID	Facility	None	NA	Asphalt	0.180	Junction with Woodcamp Access Road (FS Route 956-2)	NA - loop road back to start
BOWMAN LAKE									
Bowman Lake Campground & Boat Launch	Existing	NID	Facility	None	NA	Native (dirt)	0.310	Junction with Bowman Lake Road	NA - in-out road back to start

Table 3.2-1. (continued)

Recreation Facility Name	Existing or Proposed Facility	Lands	Facility or Access Road	Road Name (if available)	Forest Service Route No. (if applicable)	Road Surface Type	Length (miles)	Road Start	Road End
SAWMILL LAKE									
Sawmill Lake Campground	Proposed	NID	Facility	None	NA	Native (dirt)	NA	Junction with FS Road 843-37-2 (road to Sawmill Lake dam)	NA - in-out road back to start
Sawmill Lake Group Campground	Proposed	NFS	Facility	None	NA	Native (dirt)	NA	Junction with FS Road 843-37 (road to Faucherie Lake)	NA - in-out road back to start
CANYON CREEK (NON-RESERVOIR)									
Canyon Creek Campground	Existing	NFS	Facility	None	NA	Asphalt	0.280	Junction with FS Road 843-37 (road to Faucherie Lake)	NA - loop road back to start
FAUCHERIE LAKE									
Faucherie Lake Group Campground	Existing	NID	Facility	None	NA	Native (dirt)	0.065	Gate to group campground	NA - in-out road back to start
Faucherie Lake Day Use	Existing	NID	Facility	None	NA	Asphalt	0.145	Junction with road over Faucherie Lake dam	NA - loop road back to start
ROLLINS RESERVOIR									
Orchard Springs Recreation Complex	Existing	NID	Facility	Larsen Road	NA	Asphalt	1.405	Entrance station to recreation complex	NA - all roads terminate in facility or loop back to start
Greenhorn Recreation Complex	Existing	NID	Facility	Rollins Park Road	NA	Asphalt	1.065	Junction with Louis Road	NA - all roads terminate in facility or loop back to start
Peninsula Recreation Complex	Existing	NID	Facility	You Bet Road	NA	Asphalt	1.825	Entrance station to recreation complex	NA - all roads terminate in facility or loop back to start
Long Ravine Recreation Complex	Existing	NID	Facility	None	NA	Asphalt	1.375	Entrance station to recreation complex	NA - all roads terminate in facility or loop back to start

[1] Each of these Project recreation roads are also displayed in Attachment A – Project Recreation Maps.

3.2.2 Fire Rings, Grills, Food Storage Lockers, and Picnic Tables

When replacing fire rings, grills, picnic tables, animal-resistant food storage lockers, and other constructed features, NID shall replace them with new universally accessible units that meet accessible standards at the time of design - FSORAG standards at facilities on NFS land, ABAAS standards for facilities on BLM land, or ADAAG standards at facilities on NID land. Replacement of the fire rings, grills, picnic tables, and animal-resistant food storage lockers shall occur on a facility-by-facility basis; and shall be scheduled for replacement near the end of their useful life based on the findings during annual inspections.

3.2.3 Informational Resources and Signs

3.2.3.1 Rehabilitation of Existing Signs and Information Boards

NID shall replace all existing entrance signs, directional signs within facilities, directional signs to and from facilities, information/bulletin signs and trailhead signs, as needed. NID shall replace signs with a sign of a similar design, and at least to the same construction as currently exist; and at facilities on NFS land that meet Forest Service standards at the time of design. Alternative materials may be used (i.e., recycled plastic, metal, etc.). At facilities on NFS land, NID shall coordinate with the Forest Service on the placement of all signs, including the placement of the Forest Service logo on the signs. Signs shall be scheduled for replacement near the end of their useful life based on the findings during annual inspections.

3.2.4 Campground Water Systems and Water Storage Tanks

NID shall include an upgrade of the existing water systems at each facility unless NID (and the Forest Service at facilities on NFS land) agree that the upgrade is not necessary at any or all of the facilities. The upgrade at each facility will include replacement of existing distribution piping, system connections and water hydrants, and will maintain the same system design and footprint, as warranted. However, during the planning for replacement of the water distribution system, NID will evaluate if the footprint should be reviewed to determine if there is a design that would better serve recreationist and/or different source designs that would take advantage of new technology. As a general rule, all water systems shall be upgraded at least once during the license term. In addition, NID shall replace the existing water storage tanks at Jackson Meadows Reservoir at the end of their useful life. At the time of replacement, NID will evaluate expanding the capacity of the storage tanks.

3.2.5 Accessible Campsites, Picnic Sites, and Restroom Facilities

At each campground and picnic area, NID shall retrofit all constructed features of current campsites and picnic sites to meet accessibility requirements (FSORAG on NFS land; ABAAS on BLM land, and ADAAG on NID and private lands) at the time the campsites/picnic sites and restrooms are replaced. NID will evaluate all sites for accessibility and departures from the accessibility standards will be documented. At each retrofitted campsite, NID shall remove existing barriers and campsite components and install the following accessible components:

picnic table, fire ring/grill, site marker, tent pad, and paved (asphalt) parking spur with barriers. All parking spurs shall be at least 16 feet wide, with a certain percentage specified to be 20 feet wide unless a departure from this standard is applicable; and at facilities on NFS land, the departure is mutually agreed upon by NID and the Forest Service.

In addition, each restroom facility shall provide an accessible path from the campground circulation road and/or adjacent accessible campsites to the restroom facility, and one accessible water spigot/hydrant. Each restroom facility shall maintain the same general current footprint and number of toilets, sinks, and stalls, unless NID and the Forest Service or BLM on NFS or BLM land agree that the location and layout of the restroom facility should be modified. When restroom facilities are replaced, the septic system will be evaluated and replaced or upgraded, as needed, to ensure the replaced restroom facility and associated septic system operates efficiently.

3.2.6 Boat Launches: Floating Boat Docks and Concrete Boat Launches

At each boat launch facility, NID shall include the replacement of the existing floating boat dock and concrete launch ramp with structures that meet the California Department of Boating and Waterways (DBAW) standards at the time of design. The design of the boat launch facility will consider user demand, resource concerns, lake drawdown, and design standards of the time.

3.3 Scheduling Major Recreation Facility Rehabilitation

Per the specifications in Section 3.2, NID shall rehabilitate the individual facilities and components at each Project recreation facility as needed based as the facilities near the end of their useful life. However, NID will replace all the facilities and components by the year indicated in Table 3.3-1 after license issuance and FERC approval of this Plan. Between license issuance/FERC approval of this Plan, NID may begin replacement of these facilities in phases, but in some instances may chose to replace some facilities, sections, or campground loops of facilities in a wholesale manner. Regardless, by the end of the calendar year indicated in Table 3.3-1, NID will have replaced all the recreation facilities and components, unless NID for facilities on NID land or NID and the Forest Service or BLM jointly agree for facilities on NFS or BLM land, to delay rehabilitation of the facility as whole or for a specific feature. Unless otherwise agreed to by NID and Forest Service or BLM, all existing Project recreation facilities, constructed features and infrastructure will be replaced within 20 years of license issuance and FERC Approval of the Plan.

Table 3.3-1. Schedule of facility rehabilitation for existing Yuba-Bear Hydroelectric Project recreation facilities.

Recreation Area	Project Reservoir	Recreation Facility	Schedule for Completion of Rehabilitation (Year After License Issuance and FERC Plan Approval)
Jackson Meadows	Jackson Meadows Reservoir	East Meadow Campground	15
		Pass Creek Campground	12
		Pass Creek Overflow Campground	5
		Pass Creek Boat Launch	15
		Aspen Group Campground	8
		Aspen Picnic Area	8
		Jackson Meadows Vista	15
		Findley Campground	10
		Fir Top Campground	10
		Woodcamp Campground	12
		Woodcamp Picnic Area	6
		Woodcamp Boat Launch	6
		Silvertip Group Campground	8
		Jackson Point Boat-In Campground	2
	Milton Diversion Impoundment	Shoreline Restroom	15
French Lake	French Lake	No existing facilities	NA
Bowman Lake	Bowman Lake	Bowman Lake Campground	10
	Sawmill Lake	Dam Shoreline Parking	8
	Canyon Creek (non-reservoir)	Canyon Creek Campground	10
	Faucherie Lake	Faucherie Group Campground	10
		Faucherie Day Use & Boat Launch	10
Dutch Flat	Dutch Flat No. 2 Forebay	No existing facilities	NA
	Dutch Flat Afterbay	No existing facilities	NA
	Chicago Park Forebay	No existing facilities	NA
Rollins Reservoir	Rollins Reservoir	Orchard Springs Campground	15
		Orchard Springs Boat Launch	20
		Greenhorn Campground	15
		Greenhorn Picnic Area	15
		Greenhorn Boat Launch	15
		Peninsula Campground	15
		Peninsula Boat Launch	20
		Long Ravine Campground	15
		Long Ravine Boat Launch	20

3.3.1 Annual Post Peak Season Facility Inspection

For all Project recreation facilities, NID shall evaluate the current condition of each of the recreation facilities during an annual post peak season inspection during which NID will identify the facilities that require major rehabilitation during the following calendar year. This inspection shall occur after the Labor Day holiday weekend, but no later than October 31 of each year. For facilities on NFS land, the Forest Service is invited to attend these annual post peak season inspections. In addition, NID and the Forest Service, as applicable, shall identify major rehabilitation work that will require additional or extended planning and/or contracting in order to complete. Such projects may include complete resurfacing or widening of facility road

systems, replacement of the underground water system; replacement and relocation of a toilet building; or simply any combination of major rehabilitation work that may require extensive planning, contracting and implementation.

3.3.2 Annual Facility Rehabilitation Report

Based on the findings during the annual post peak season inspection, NID will develop an Annual Rehabilitation Report that includes a proposed schedule for rehabilitation or replacement of Project recreation facilities for the upcoming year; and also includes a proposed schedule or at least a summary of facilities that may require additional planning for major rehabilitation work that will occur beyond the current year/season. NID shall provide the Annual Rehabilitation Report to the Forest Service (and any other applicable agency as appropriate) at least 30 days prior to the forthcoming Annual Coordination Meeting (typically scheduled in the early months of the next calendar year following each annual post peak season inspection). Refer to Section 5 for details on the Annual Coordination Meeting.

For facilities on NFS land, NID and the Forest Service will, during the Annual Coordination Meeting, review the status of recreation facilities proposed for major rehabilitation in the current and upcoming years. For facilities on NFS land, the recreation facility rehabilitation schedule may be revised, as needed, upon agreement by both NID and the Forest Service. NID may revise the schedule for facilities on NID land as needed, but shall provide justification for any such changes. NID shall file the Annual Rehabilitation Report with FERC within 30 days of the Annual Coordination Meeting.

The rehabilitation work is generally replacement-in-kind and does not alter the existing layout/ footprint nor does it require new design elements or expansion outside of the existing facility footprints. As noted above, for major rehabilitation work projects that will require additional planning, NID shall conduct the contracting, planning and coordination in preparation of construction activities no later than one calendar year before the rehabilitation work is scheduled. NID shall aim to complete as much work as possible during periods when the facilities are normally closed (immediately before and after the open season); however, it is expected that some work will require closing the recreation facilities during the typical open season to complete all the proposed work. In general, NID shall start rehabilitation work immediately after Labor Day to avoid the need to complete the construction work during the summer months/peak recreation season. Regardless, NID shall aim to complete as much work as possible during periods when the facilities are normally closed; however, it is expected that some work will require closing the recreation facilities during the typical open season to complete all the proposed work. Where practical, NID may close individual loops or sections of a facility independently to avoid closing the entire facility to public recreation. Some work that does not create a public safety issue or excessive disruption (such as restroom replacement) can be accomplished during the summer months. On NFS land, these partial closures or summer work items will be agreed to by NID and the Forest Service at the Annual Coordination Meeting. NID shall make a good faith effort to complete the rehabilitation of any one facility within two years of commencement of reconstruction activities, so that the facility is not closed for more than two calendar years.

Unless otherwise stated below, NID shall maintain approximately the same capacity as the capacity the existing facility provides, unless data (Section 4 – Monitoring Program) indicates a need for reduced or increased capacity or NID and the Forest Service (on NFS land) mutually agree to modify the capacity. In case of an unplanned or catastrophic event (i.e. sump failure, road washout, roof/wall collapse, septic system failure, forest fire, etc.), NID shall be responsible for returning (repair or replacement) the facility to the same condition (materials and design) as prior to the event.

3.3.3 Construction of New or Expanded Facilities

Over the term of the license, NID will be responsible for construction of all proposed new Project recreation facilities. NID will be responsible for funding the actual capital costs of the proposed facilities. All new Project recreation facilities on NFS or BLM lands shall remain the property of NID upon completion.

When new construction or expansion is specified, the site capacities in this Plan are estimates only and will be refined during site design, based on current resource agency plans, ROS class, laws, standards and policy for resource protection, topographic feasibility, and recreation facility design. The improvements listed in this Plan are proposed with the assumption that the work specified is feasible without excess site disturbance (refer to the Glossary for a definition of "feasible").

3.4 Capital Improvements

Capital improvements fall into two categories – major and minor. Major capital improvements are improvements that require a site survey, design work and developing a new site footprint. Furthermore, major capital improvements require extensive planning and design time that will require multiple years to implement. Examples of major capital improvements include construction of new campgrounds, picnic areas, parking areas, etc.

Minor capital improvements do not require submittal of design drawings or construction plans or alter the footprint or layout of an existing site. Minor capital improvements include installation of signs or natural vehicle barriers, particularly at locations where recreational development does not already exist. These improvements require minimal construction and/or work to complete.

The following sections details the major and minor capital improvements planned.

3.4.1 Major Capital Improvement Site Development Planning and Implementation

Major capital improvement work generally involves a three-step planning and implementation process. Steps in this process include preparation of a Design Narrative, Site Concept Plan, Site Development Plan, Construction Plan, contracting, and reconstruction. The steps are described below.

During this process, reconstruction plans and minor capital improvements (such as constructed feature replacement) at facilities located on NFS or BLM lands will need to meet current agency standards and require approval by the appropriate resource agency.

3.4.1.1 Step 1 – Site Planning

NID will conduct planning and design in consultation with the Forest Service at facilities located on NFS land. The Planning phase consists of a Design Narrative and a Site Concept Plan.

The Design Narrative describes the management objectives, design criteria, and constraints associated with the major rehabilitation of a recreation facility. The Design Narrative should include: a) management objectives; b) design criteria, including criteria on type and color of materials and accessibility; c) existing physical conditions; d) any rehabilitation and new construction; e) anticipated management problems that design may minimize; f) site capacity, durability, and protection; g) user safety; and h) interpretive services.

The Site Concept Plan presents a preliminary graphic illustration of proposed facilities and utilities in relationship to existing site features, facilities, and utilities. The Site Concept Plan will communicate proposed development ideas or alternatives. The Site Concept Plan may include enlargements of the area that indicate placement and orientation of the proposed facilities. This may include the use of aerial photography or topographic maps.

3.4.1.2 Step 2 – Site Development Plans

NID shall prepare a Site Development Plan that is consistent with the Site Concept Plan. On NFS land, NID will be consulted during the preparation of the Site Development Plan; and the plans will be approved or revised by the Forest Service. The goal of this step is to: 1) develop design drawings for the recreational features described in this Plan; 2) identify site-specific erosion and sedimentation control measures that will be used; 3) identify any necessary measures to address traffic circulation and parking issues associated with recreation use during the reconstruction activity; and 4) develop an implementation schedule.

This step will also involve: 1) review of the other sensitive resource inventories (cultural, archeological, and biological resources); 2) identification of appropriate procedures to avoid impacts to other key resources at the site; and 3) identification of any regulatory requirements needed prior to commencing construction. At facilities on NID land, NID shall prepare a professionally engineered Construction Plan and file it with FERC. At facilities located on NFS land, upon Forest Service approval of the Site Development Plan, NID shall submit the Construction Plan to the Forest Service for a 30-day review. Within 60 days following Forest Service approval at facilities located on NFS land, NID shall file the Construction Plan with FERC for approval.

3.4.1.3 Step 3 – Contracting and Construction

NID shall conduct the contracting, planning and coordination in preparation of construction activities. For improvements on NFS land, NID shall commence construction after consultation

with the Forest Service to ensure construction activities are coordinated with Forest Service management of the recreational resources. NID shall make a good faith effort to complete the rehabilitation of any one campground or picnic area within one year of commencement of reconstruction activities, so that the facility is not closed for more than one calendar year.

NID may choose to complete scheduled major rehabilitation work prior to the scheduled timeframe, particularly when substantial cost savings are possible (i.e., volume discounts, high mobilization or transportation costs, etc.). In such scenarios, NID shall include these ahead-of-schedule work tasks in the site development plans as with all other normally scheduled work.

During this three-step process for each of the proposed major capital improvements below, NID and the Forest Service will, during the Annual Coordination Meeting, review the status of recreation facilities proposed for capital improvements on NFS land. For facilities on NFS land, upon agreement by both NID and the Forest Service, the capital improvement schedule for these facilities may be revised, as needed.

3.4.2 Proposed Major and Minor Capital Improvements

The following section describes the major and minor capital improvements proposed by NID at the Project recreation facilities at Project reservoirs and impoundments.

3.4.2.1 Jackson Meadows Reservoir

At present, Jackson Meadows Reservoir provides a highly developed recreation area with a wide variety of recreation opportunities. In all, the recreation area consists of the follow developed facilities - five campgrounds, two group campgrounds, two picnic/day use areas, two boat launch ramp facilities, and a vista/overlook. NID's management and development strategy is to rehabilitate all of the developed recreation facilities and also provide enhanced recreation facilities and opportunities throughout the developed recreation area. In general, improvements at Jackson Meadows Reservoir are related to providing additional parking at boat launches; improved boat ramps; developing an accessible trail opportunity; developing a pedestrian trail system (not designed to accessible standards) to improve the linkages between the Project recreation facilities; and providing vault restroom buildings in place of the existing flush restroom buildings to address the unreliable water sources in the Jackson Meadows Reservoir area. The details of these specific improvements by facility are provided in Table 3.4-1.

Table 3.4-1. Major and minor recreational capital improvements and schedule at the Jackson Meadows Reservoir over the term of the new license.

Project Recreation Facility	Existing or New Facility	Lands	Type of Capital Improvement	Description of Capital Improvement	Implementation Schedule (year after license issuance and FERC approval of the Plan)	
					Begin Site Development Planning Process	Complete Site Development/ Construction
All Campgrounds	Existing	NFS NID	Major	• None	--	--
			Minor	• Install animal-resistant food lockers at the remaining campsites that do not have such lockers.	1	5
East Meadow Campground	Existing	NFS	Major	• Construct and maintain a pedestrian, single track trail (Class III, native surface and not designed to accessible standards) from the first loop of the campground to Pass Creek.	4	5
				• Upgrade the host campsite to include septic or holding tank (or leach system) and hydrant for water hook up at site.	14	15
			Minor	• Replace at least one existing flush restroom with a vault restroom at the time the facility is rehabilitated, unless NID and Forest Service mutually agree to replace with all flush models. The total number of flush restrooms to be replaced with vault models will be determined at the time of replacement.	14	15
				• Expand and gravel the existing overflow parking area at the campground entrance to at least 25 ft. by 60 ft.	1	2
Pass Creek Campground	Existing	NFS	Major	• Upgrade the host campsite to include septic or holding tank (or leach system) and hydrant for water hook up at site.	11	12
			Minor	• Replace the flush restroom buildings with vault models at the time the facility is rehabilitated, unless NID and Forest Service mutually agree (on NFS lands) to keep all flush models or a combination of vault and flush models.	11	12
Pass Creek Overflow Campground	Existing	NFS	Major	• Install a 1-unit vault restroom.	4	5
			Minor	• Provide additional boat launch parking for Pass Creek Boat Launch in the overflow camping area (at all or part of the overflow facility) during the early season when the auxiliary boat launch parking area (low water) is below the high water line. Once the auxiliary parking area is available (above the reservoir water surface elevation), the Pass Creek Overflow Campground will be converted back to camping. • Install removable site markers at the existing overflow campsites.	1	2
Pass Creek Boat Launch	Existing	NFS	Major	• Construct/maintain an accessible trail on the shoreline from the boat launch parking area to the shoreline at Aspen Picnic Area.	4	5
			Minor	• None	--	--
Aspen Group Campground	Existing	NID	Major	• Construct a pedestrian, single track trail (native surface and not designed to accessible standards) from the group campground to the parking area at Aspen Picnic Area.	4	5
			Minor	▪ None	--	--
Aspen Picnic Area	Existing	NFS	Major	• None	--	--
			Minor	• Replace the 4-unit vault restroom at shoreline with 2-unit accessible vault restroom. • Develop two additional accessible picnic sites to FSORAG standards.	7	8
Jackson Meadows Vista	Existing	NID	Major	• None	--	--
			Minor	• None	--	--
Silvertip Group Campground	Existing	NID	Major	• None	--	--
			Minor	• None	--	--

Table 3.4-1. (continued)

Project Recreation Facility	Existing or New Facility	Lands	Type of Capital Improvement	Description of Capital Improvement	Implementation Schedule (year after license issuance and FERC approval of the Plan)	
					Begin Site Development Planning Process	Complete Site Development/ Construction
Fir Top Campground	Existing	NFS	Major	• None	--	--
			Minor	• Replace the flush restroom buildings with vault models, unless NID and Forest Service mutually agree to keep all flush models or a combination of vault and flush models.	9	10
Findley Campground	Existing	NFS	Major	• None	--	--
			Minor	• Replace the flush restroom buildings with vault models, unless NID and Forest Service mutually agree to keep all flush models or a combination of vault and flush models.	9	10
Woodcamp Campground	Existing	NFS	Major	• Replace the flush restroom buildings with vault models, unless NID and Forest Service mutually agree to keep all flush models or a combination of vault and flush models.	11	12
			Minor	• Upgrade the host campsite to include septic or holding tank (or leach system) and hydrant for water hook up at site.	11	12
Woodcamp Boat Launch	Existing	NFS	Major	• Upgrade the existing boat launch facilities, including replacing the concrete launch ramp to California Department of Boating and Waterways standards at the existing location; paving the parking area; widening and re-paving the facility circulation road; and replacing the existing 2-unit restroom building. *Note: the flush restroom building will be replaced with a vault model, unless NID and Forest Service mutually agree to replace it with a flush model.*	5	6
			Minor	• None	--	--
Woodcamp Picnic Area	Existing	NFS	Major	• Develop a parking/loading and unloading area (4 spaces) at the lower/shoreline restroom including 2 accessible (FSORAG) parking spaces and 2 standard non-accessible loading/unloading only parking spaces. • Develop vehicle access to the parking/loading and unloading area via 1-lane, 1-way road by using the existing, gated service road to the lower/shoreline restroom building. • Develop accessible picnic units (6 units) each with a picnic table and pedestal grill. • Develop accessible routes connecting the restroom, parking area and picnic units. • Replace the existing lower/shoreline 4-unit vault restroom building with a 2-unit vault restroom building.	5	6
				• Develop RV overflow campsites at Woodcamp Picnic Area in the parking area[6].	5	6
			Minor	• None	--	--

[6] Implementation of this measure is solely dependent upon whether the Pass Creek Overflow Campground is converted permanently to boat launch parking (see Pass Creek Overflow Campground details in this table). If the Pass Creek Overflow Campground is not permanently converted to boat launch parking, then NID will not develop this improvement.

Table 3.4-1. (continued)

Project Recreation Facility	Existing or New Facility	Lands	Type of Capital Improvement	Description of Capital Improvement	Implementation Schedule (year after license issuance and FERC approval of the Plan)	
					Begin Site Development Planning Process	Complete Site Development/ Construction
Woodcamp Complex Trail System	New	NFS/NID	Major	▪ Construct and maintain pedestrian, single-track connector trails (Class III, not designed to accessible standards) between the Project recreation facilities within the Woodcamp Complex (Fir Top, Findley, Woodcamp and Silvertip Group campgrounds; and Woodcamp Picnic Area). ▪ Construct and maintain a non-motorized, pedestrian connector trail (Class III, not to accessible standards) within the existing FERC Project boundary from the aforementioned Woodcamp Complex Trail System to the trailhead of the non-project Woodcamp Interpretive Trail, including installing signage identifying the presence of/direction to the non-project Woodcamp Interpretive Trail. • Install and maintain appropriate trail and trailhead signage on the Woodcamp Complex Trail system.	4	5
			Minor	• None	--	--
Jackson Point Boat-in Campground	Existing	NFS	Major	▪ None	--	--
			Minor	▪ Relocate boat-in campsites, as needed; and remove up to 4 existing campsites based on the availability of suitable campsite locations. ▪ Install animal-resistant food lockers at each remaining campsite. ▪ NID will remove the existing pit toilets and provide resource protection signage at the facility information board that informs users of how to dispose of their human waste properly in the absence of a restroom facility. ▪ NID will remove of all restroom facilities at this facility for several reasons, including: 1) current health, safety, and sanitation concerns at the existing (old) pit toilets by NID, Forest Service and Sierra County; 2) the lack of public vehicle access to the facility to effectively maintain the restroom facilities that currently exist and minimize any potential health, safety, and sanitation concerns; and 3) overall low utilization of these campsites. ▪ Further, NID will monitor the sanitation/human waste impacts at this facility regularly during the open season and annually will evaluate the need for additional resource protection measures (other than installing restrooms) related to the human waste.	1	2
				▪ If, during the new license period, NID becomes aware of a change in ownership on the private land(s) abutting the shoreline between Jackson Point Boat-In Campground and East Meadow Campground where an existing private road is located, NID will make a good faith effort to obtain administrative access to Jackson Point Boat-In Campground (to maintain the facility as a whole but, in particular, to provide and maintain restroom buildings) via the private road from the new private land owner.	NA	N/A
Water Storage Tanks	Existing	NID NFS	Major	• None	--	--
			Minor	• Evaluate expanding the capacity of the water storage tanks when the facility is rehabilitated at the end of their useful life.	NA	NA
Sanitary Dump Station	Existing	NID	Major	• None	--	--
			Minor	• Explore opportunities and implement measures to improve the efficiency of the facility (i.e., change in management/administration, operational changes or potentially facility modifications). • Even after efforts to improve facility usage and efficiency, if the facility continues to receive inadequate/low levels of use to justify the expense of providing the facility, NID reserves the right to decommission the dump station facility.	1	5

Table 3.4-1. (continued)

Project Recreation Facility	Existing or New Facility	Lands	Type of Capital Improvement	Description of Capital Improvement	Implementation Schedule (year after license issuance and FERC approval of the Plan)	
					Begin Site Development Planning Process	Complete Site Development/ Construction
Administrative Center	Existing	NFS	Major	• None	--	--
			Minor	• Remove the administrative facility from the FERC Project boundary. NID does not have an existing or future need for this facility to operate and maintain the Project recreation facilities.	1	1

3.4.2.2 Milton Diversion Impoundment

At present, recreation use at Milton Diversion Impoundment includes a mix of day use and overnight recreation along the shoreline including direct vehicle access to the shoreline. The impoundment has two developed facilities or features – a vault restroom building and information board. Presently, day use activities and dispersed camping occurs along the impoundment shoreline without designated areas or active management of either opportunity. The recreation use along the north shoreline at Milton Diversion Impoundment is located on NFS land classified as "Roaded Natural" (USDA 1990); and the impoundment is designated as a fishing/special use area, which the CDFG manages to maintain an abundant population of trophy-size trout.

NID's approach is to designate vehicle access for day use and overnight campers and to develop the necessary facilities to provide for both types of use, while minimizing the impacts to the shoreline from vehicles and shoreline use. Overnight camping will only be allowed at the designated campsites and the remainder of the dispersed campsites within the FERC Project boundary will be dismantled. All other shoreline areas will remain accessible to the public, but NID will post signage that the areas outside of the designated campsites are for day use only. Further, NID's approach is to provided developed facilities at the impoundment that are designed to Development Scale 2[7] standard, which is consistent with the level of development for the semi-primitive motorized ROS. The details of each major and minor improvement are provided in Table 3.4-2.

Table 3.4-2. Major and minor recreational capital improvements and schedule at the Milton Diversion Impoundment over the term of the new license.

Project Recreation Facility	Existing or New Facility	Lands	Major or Minor Improve-ment	Description of Capital Improvement	Implementation Schedule (year after license issuance and FERC approval of the Plan)	
					Begin Site Development Planning Process	Complete Site Development/ Construction
Day Use Area	New	NFS	Major	• Develop a shoreline day use area (Dev. Scale 2) that includes a: ▪ Gravel parking area for up to 5 vehicles with barriers and appropriate signage. As feasible, an accessible parking space will be provided and signed. ▪ Single-lane hand launch designed to accessible standards, as feasible.	6	7
			Minor	• None	--	--
Primitive Campsites	New	NFS	Major	• Develop six primitive, walk-in campsites (Dev. Scale 2) each with at least one designated parking space (setback from the shoreline), steel fire ring, and site marker.	6	7
			Minor	• None	--	--
Restroom	Existing	NFS	Major	• None	--	--
			Minor	• Develop an accessible parking space and access route to the existing vault restroom building.	6	7

[7] Development Scale 2 or rustic or rudimentary improvements are designed for protection of the site rather than comfort of the users (USDA 1986).

3.4.2.3 Bowman Lake

Most of the recreation opportunities at Bowman Lake are dispersed along the north and east shorelines along Bowman Lake Road from the dam to the inflow of Jackson Creek on either NID or NFS land. All of these opportunities and facilities lie within the "Semi-Primitive Motorized" ROS classification (USDA 1990). The developed facilities at Bowman Lake are generally designed to Development Scale 2 standards, which is consistent with the level of development for the semi-primitive motorized ROS. In addition, the management objectives specified in the TNF LRMP for the "Semi-Primitive Motorized" ROS class states the "area is characterized by a predominantly natural or natural-appearing environment of moderate to large size. Concentration of users is low, but there is often evidence of other users (USDA 1990). Further, the Forest Service area management direction is to provide minimum on-site controls, subtle restrictions, and permit public motorized use (USDA 1990).

NID's plan is to maintain and rehabilitate the existing 10-site developed campground on NID land. In addition, NID's approach is to improve the shoreline camping and day use opportunities on NID land by designating sites for each type of use and providing additional facilities, where appropriate. Finally, NID shall install a gate at the road leading to the reservoir near the Junction of Graniteville Road and Bowman Lake Road (used informally as a boat ramp) to restrict vehicle use, but continue to allow hand/car-top boat launching opportunities and pedestrian access to the shoreline. NID's rationale for this action is that the road (originally built for the construction of the Project/dam) is not designed for boat launching and, as a result, the steep, narrow and constricted nature of the road is unsafe for such uses.

Overall, NID's management strategy at this reservoir is to designate vehicle access for day use and overnight campers and to develop the necessary facilities to provide for both types of use, while minimizing the impacts to the shoreline from vehicles and shoreline use. Overnight camping will only be allowed at the designated shoreline campsites and developed campground on the north shoreline off Bowman Lake Road; and at dispersed, hike-in or boat-in campsites on the south shoreline. The remainder of the dispersed campsites within the FERC Project boundary will be dismantled. All other shoreline areas will remain accessible to the public, but NID will post signage that the areas outside of the designated campsites are for day use only. Further, NID's approach is to provided developed facilities at the impoundment that are designed to Development Scale 2[8] standard, which is consistent with the level of development for the semi-primitive motorized ROS. The details of each major and minor improvement are provided in Table 3.4-3.

[8] Development Scale 2 or rustic or rudimentary improvements are designed for protection of the site rather than comfort of the users (USDA 1986).

Table 3.4-3. Major and minor recreational capital improvements and schedule at the Bowman Lake over the term of the new license.

Project Recreation Facility	Existing or New Facility	Lands	Major or Minor Improvement	Description of Capital Improvement	Implementation Schedule (year after license issuance and FERC Plan approval)	
					Begin Site Development Planning Process	Complete Site Development/ Construction
All Lands Within FERC Project Boundary	N/A	NID NFS	Major	• None	--	--
			Minor	• Designate and appropriately sign the reservoir for day use and camping in designated sites only, except on the south shoreline where boat-in and hike-in dispersed camping will be permitted. • Dismantle all dispersed, non-designated campsites on the north shoreline along Bowman Lake Road from the dam to the Jackson Creek inflow.	1	2
Designated Primitive Campsites	New	NID	Major	• None	--	--
			Minor	• Designate up to 10 primitive campsites along the shoreline on NID land, each with a picnic table, fire ring, animal-resistant food locker, parking spur/space with barriers, site marker, and resource protection signage.	1	2
Inflow Day Use Area	New	NID	Major	• Develop a gravel parking area for up to 10 vehicles with vehicle barriers and a 2-panel information board at the upstream end of the reservoir (on NID land) where Jackson Creek flows into the reservoir.	1	2
			Minor	• None	--	--
Shoreline Access Road (Informal Boat Ramp)	Existing	NID	Major	• None	--	--
			Minor	• Install gate at top of the road/informal boat ramp to prevent vehicles from using the ramp. • Install signage for day use only, hand launching only, and inform visitors of the formal boat ramp at the east end of the reservoir at Bowman Lake Campground. • Dismantle all dispersed campsites.	1	2

3.4.2.4 Sawmill Lake

At present, Sawmill Lake does not have any developed recreation facilities, but provides a basic day use site near the dam (parking and informal boat ramp) and dispersed campsites. The vast majority of recreation use and opportunities exist on the north shoreline of Sawmill Lake, where steel and rock fire rings provided dispersed camping along the entire north shoreline; and the dam area provides day use parking and an informal boat launch. The south shoreline is only accessible by foot or non-motorized watercraft. The north shore of the reservoir has an ROS classification of "Roaded-Natural," and the south shore has a "Semi-Primitive Non-motorized" classification (USDA 2004).

Considering the ROS classifications and associated TNF LRMP management objectives (USDA 2004), NID's management and development approach at Sawmill Lake is to maintain the existing recreation opportunities (day use and camping), but provide developed, rustic facilities along the north shoreline of the reservoir. Rather than continue to allow camping along the entire north shoreline; NID shall consolidate, spread out and enhance the existing camping opportunities by developing a rustic family and group campground facility. The family campground is proposed on NID land near the dam and the group campground is proposed on NFS land approximately 0.25 mi to the southeast. Regarding day use opportunities, NID shall

maintain the existing parking area and informal launch ramp at the dam, but designate the site for day use only and remove all dispersed campsites.

Overnight camping will only be allowed at the two developed campgrounds on the north shoreline; and at dispersed, hike-in or boat-in campsites on the south shoreline. The remaining dispersed user-created campsites on NID and NFS land outside the developed campgrounds but within the existing FERC Project boundary on the north shoreline will be dismantled. These other shoreline areas will remain accessible to the public, but NID will post signage that the areas outside of the developed campgrounds are for day use only. Details on these major and minor capital improvements are provided in Table 3.4-4.

Table 3.4-4. Major and minor recreational capital improvements and schedule at the Sawmill Lake over the term of the new license.

Project Recreation Facility	Existing or New Facility	Lands	Improve-ment Type	Description of Capital Improvement	Implementation Schedule (year after license issuance and FERC Plan approval)	
					Begin Site Development Planning Process	Complete Site Development/ Construction
All Lands Within FERC Project Boundary	N/A	NID NFS	Major	• None	--	--
			Minor	• Designate and appropriately sign the reservoir for day use and camping in designated sites only, except on the south shoreline where boat-in and hike-in dispersed camping will be permitted. • Dismantle all dispersed campsites on the north shoreline along the road to Faucherie Lake from the dam to the inflow.	7	8
Dam Day Use Area	Existing	NID	Major	• None	--	--
			Minor	• Convert and sign the site for day use only. • Remove all dispersed campsites. • Install a 2-panel information board with reservoir information, regulations and map displaying Project recreation opportunities in the area.	7	8
Sawmill Lake Family Campground	New	NID	Major	• Develop a rustic, 10-unit family campground on NID land. The campground will consist of 10 campsites each with a table, fire ring, animal-resistant food locker, site marker, and vehicle spur (native surface) with barriers (using natural materials). The campground will have a native surface circulation road, a 2-unit vault restroom building, appropriate signage, and an entrance station.	7	8
			Minor	• None	--	--
Sawmill Lake Group Campground	New	NFS	Major	• Develop a rustic (Dev. Scale 2) group campground on NFS land. The campground will consist of a single 25 PAOT campsite with a native surface parking area for 10 vehicles with barriers (using natural materials); a 1-unit vault restroom; and a hand launch facility. The group campsite area will consist of 5 picnic tables, 1 large group fire ring, 2 large animal-resistant food lockers, and at least 5 graded tent pads, as feasible. As feasible, the campground will meet accessibility (FSORAG) guidelines.	7	8
			Minor	• None		

3.4.2.5 Canyon Creek Campground (non-reservoir facility on Canyon Creek)

At present, overnight camping is provided at the Canyon Creek Campground on NFS land 1.0 mile downstream of Faucherie Lake on Canyon Creek. NID's approach is to rehabilitate the existing campground and enhance the existing facilities by installing animal-resistant food lockers at any remaining campsites that lack these lockers (Table 3.4-5).

Table 3.4-5. Major and minor recreational capital improvements and schedule at the Canyon Creek Campground over the term of the new license.

Project Recreation Facility	Existing or New Facility	Lands	Improve-ment Type	Description of Capital Improvement	Implementation Schedule (year after license issuance and FERC Plan approval)	
					Begin Site Development Planning Process	Complete Site Development/ Construction
Canyon Creek Campground	Existing	NFS	Major	• None	--	--
			Minor	• Install animal-resistant food lockers at campsites that lack lockers.	4	5

3.4.2.6 Faucherie Lake

At present, Faucherie Lake has two developed facilities including a group campground and day use area with an informal boat launch. Vehicle access exists to these two developed facilities, but the remainder of the reservoir is only accessible by foot or watercraft. Day use parking is also available across the dam. The vast majority of recreation use occurs at the group campground. Lands surrounding Faucherie Lake are primarily NID land with some NFS land on the eastern shoreline; and the area lands are classified primarily as "Semi-primitive Non-motorized" in the Forest Service ROS classification system (USDA 2004). However, the northern edge of the reservoir is managed for "Roaded Natural" objectives, where the developed recreation sites, dam, and boat ramp are located on NID land.

NID's development approach at Faucherie Lake is to maintain the existing recreation facilities (day use and group camping). However, at the day use facility, NID shall change the management and development of the informal boat ramp to a hand/car-top launch since the informal ramp is not designed for boat trailers and is inconsistent with the rough road conditions leading to this reservoir; and the existing need to barrier the end of the ramp to prevent impacts (shoreline erosion and conflicts with group campers at the group campground shoreline) from vehicles accessing the shoreline below high water line when the reservoir level recedes. As such, NID will work with Nevada County to pursue an ordinance that limits the types of boating to non-motorized or small motors only and limits the speed on the reservoir to support NID's proposed development.

At the vehicle accessible areas (on NID land), NID will continue to permit day use and overnight camping at the respective facilities; and will permit dispersed camping on the remainder of the shoreline, where access only occurs by foot or boat. Regarding the existing day use parking across the dam, NID shall install a gate at the start of the dam road to prevent vehicles from accessing the dam and associated structures. The site/area will remain open to the public.

Details on the major and minor capital improvements at Faucherie Lake are provided in Table 3.4-4.

Table 3.4-6. Major and minor recreational capital improvements and schedule at the Faucherie Lake over the term of the new license.

Project Recreation Facility	Existing or New Facility	Lands	Improve-ment Type	Description of Capital Improvement	Implementation Schedule (year after license issuance and FERC Plan approval)	
					Begin Site Development Planning Process	Complete Site Development /Construction
Day Use and Boat Ramp	Existing	NID	Major	• None	--	--
			Minor	• Install barriers at the launch to provide hand launching only. • Work with Nevada County to designate the lake for non-motorized boating uses only.	1	2
Dam Parking Area	Existing	NID	Major	• None		
			Minor	• Install a gate at the start of the dam access road to prevent vehicle access.	1	2
Group Campground	Existing	NID	Major	• None	--	--
			Minor	• None	--	--

3.4.2.7 Dutch Flat No. 2 Forebay

Dutch Flat No. 2 Forebay does not have any developed recreation facilities, but provides day use opportunities via a dispersed shoreline access and informal parking area located between the dam and the Dutch Flat No. 2 Forebay spillway. The shoreline access area is located on NID land. NID's management and development strategy is to maintain the existing undeveloped parking area and install an information board (1 panel) along the shoreline side for public safety and recreation information (Table 3.4-7).

Table 3.4-7. Major and minor recreational capital improvements and schedule at the Dutch Flat No. 2 Forebay over the term of the new license.

Project Recreation Facility	Existing or New Facility	Lands	Improve-ment Type	Description of Capital Improvement	Implementation Schedule (year after license issuance and FERC Plan approval)	
					Begin Site Development Planning Process	Complete Site Development /Construction
Information Board	New	NID	Major	• None	--	--
			Minor	• Install a 1-panel information board on the shoreline.	1	2

3.4.1.4 Dutch Flat Afterbay

Improvements on NID Land

Dutch Flat Afterbay does not have any developed recreation facilities; however, three undeveloped roadside parking areas, an informal launch and general roadside parking provide visitors with access to the shoreline. Land ownership at these shoreline access areas varies between NID, PG&E, BLM and private lands. NID's management and development strategy is

to maintain the existing undeveloped parking areas, but develop a day use area if a suitable location can be found on NID or BLM land along the shoreline. Potential improvements may include facilities such as picnic tables, a vault restroom, signage or information kiosk and a defined parking area.

Table 3.4-8. Major and minor recreational capital improvements and schedule at the Dutch Flat Afterbay over the term of the new license.

Project Recreation Facility	Existing or New Facility	Lands	Improve-ment Type	Description of Capital Improvement	Implementation Schedule (year after license issuance and FERC Plan approval)	
					Begin Site Development Planning Process	Complete Site Development /Construction
Day Use Area	New	Unknown	Major	• None	--	--
			Minor	• Develop a day use area along the shoreline if suitable land is found.	7	8

3.4.2.7 Project Information Resource and Sign Improvements

Consistent Signage at Project Recreation Facilities
All Project information boards at Project recreation facilities will provide consistent signage to include, at a minimum: 1) a map including area Project recreation opportunities, 2) emergency contact information, and 3) applicable water surface regulations (county speed limits, direction of travel, horsepower/craft restrictions, etc.).

Within five years of FERC approval of the Plan, NID shall provide the consistent signage with the above listed elements at all Project recreation facilities. At recreation sites without restrooms, NID will install resource protection signage. At facilities on NFS land, NID will provide this information to the appropriate resource agency for review and comment prior to installation. Significant proposed changes to this information on NFS lands will be discussed at Annual Coordination Meetings and any changes of this information on NFS lands will require prior Forest Service approval. NID will develop the consistent informational signage within two years of FERC approval of the Recreation Facilities Plan.

In addition, NID shall provide signage provided by the CDFG and/or Forest Service at specific Project reservoirs where public education information is needed to reduce the spread of amphibian chytrid fungus. NID shall provide signage from the CDFG and/or Forest Service at information boards at recreation facilities at these Project reservoirs.

3.5 Avoidance of Sensitive Resource Areas

Importantly, at any time during the new license when major rehabilitation or capital improvements is planned, the work and placement will not occur in sensitive resource areas (e.g. wetlands, culturally sensitive sites, critical wildlife habitats, sensitive botanical sites, etc.). The site development plan for any capital improvements or major site construction will clearly address and avoid any sensitive resource concerns.

For development projects within the existing FERC Project Boundary, NID will avoid the sensitive resources based on sensitive resource management plans developed (e.g., Vegetation Management Plan, HPMP). However, if future developments require construction outside the FERC Project Boundary, NID will evaluate the need for additional resource surveys during the planning process and in consultation with the Forest Service on NFS land and BLM on BLM land.

NID shall consult with other management plans developed for the protection of significant and sensitive resources as part of the licensing process (i.e., Vegetation Management Plan, Historic Properties Management Plan, Transportation Plan). NID shall consult with the appropriate resource agency to ensure that its recreation rehabilitation and improvements are consistent with the overall goals and specific requirements of other license conditions and other FERC-approved management plans that are protective of other key resources.

3.6 Designated Camping Policy

As a policy, NID will pursue county ordinances (Nevada and Sierra counties) to limit camping to developed campgrounds and designated campsites within the FERC Project Boundary on NID lands, unless the Plan specifically states otherwise. NID will also work with the Forest Service to support any such policy on NFS land within the FERC Project boundary. NID will also continue to consult with the respective county sheriff for user compliance. Table 3.6-1 details NID's designated camping areas and exceptions to the designated camping policy.

Table 3.6-1. Summary of NID's camping policies by Project reservoir within the FERC Project boundary.

Project Reservoir	Designated Camping Policy	Lands with Designated Camping Policy Exception
Jackson Meadows Reservoir	• All areas	• None
Milton Diversion Impoundment	• All lands from Milton Diversion Impoundment dam to upstream end of reservoir on north shoreline (along Henness Pass Road)	• Dispersed camping allowed on remainder of shoreline lands within FERC Project boundary
Bowman Lake	• All lands from Bowman Lake Dam to upstream end of reservoir/Jackson Creek inflow on north shoreline (along Bowman Lake Road)	• Dispersed camping allowed on remainder of shoreline lands within FERC Project boundary
Sawmill Lake	• All lands from Sawmill Lake Dam to Canyon Creek inflow on north shoreline	• Dispersed camping allowed on remainder of shoreline lands within FERC Project boundary
Canyon Creek Campground	• All areas	• None
Faucherie Lake	• North shoreline on NID land from group campground to the dam/Canyon Creek outflow	• Dispersed camping allowed on remainder of shoreline lands within FERC Project boundary
Rollins Lake	• All areas	• None

Page Left Blank

SECTION 4

RECREATION MONITORING PROGRAM

This section of the Plan describes the monitoring program and proposes standards that quantify recreation management objectives. The Recreation Monitoring Program is designed to measure recreation use levels, recreation use impacts, visitor tolerances for impacts (crowding, conflict, use impacts, facility conditions, etc.) and management actions that might be used to address identified "impact problems". Taken together, this information allows managers and stakeholders to determine if the Plan objectives are being achieved or consider other ways to meet them. This section of the Plan describes the monitoring program and proposes standards that quantify recreation management objectives.

The monitoring program has fieldwork and user survey components, both of which have been adapted from the 2009 recreation study protocols developed during relicensing of the Project. The recreation relicensing study protocols and adaptations to them are described in more detail in the following sections.

Some license term monitoring occurs annually, while other monitoring occurs every six or twelve years (allowing coordination with a standardized FERC recreation use reporting requirement, Form 80, which is on a six-year cycle). The monitoring program allows completion of Form 80, but also addresses a much wider range of Project recreation issues. Annual monitoring will occur in the year following FERC approval of this Plan (expected in 2013; monitoring will begin in 2014). The "every-six-years" and "every-12-years" monitoring cycles will begin in 2018, which will occur roughly two years after the completion of most near-term major rehabilitation and capital improvements to recreation facilities. This will allow new use patterns to stabilize in response to the rehabilitation and improvements.

4.1 Monitoring Concepts - Indicators, Standards, and Capacities

Effective recreation monitoring programs are guided by resource condition "indicators" and "standards," which are necessary to define appropriate visitor capacities (Stankey et al. 1985; Shelby and Heberlein 1986; Manning 1999 and 2007). Indicators refer to quantifiable measures of important social and physical conditions; standards define the level of those indicators that are considered acceptable. If monitoring shows that conditions exceed acceptable levels defined by standards, an "impact problem" is said to exist, and should be addressed by management action.

This Plan uses standards that when exceeded, trigger a review of potential management actions, but they do not mandate a particular action. Indicators and standards are decisions made by resource managers, but should be informed by scientific research, public input, and sound professional judgment. This Plan proposes several important social and physical indicators and standards for those indicators based upon information from the relicensing studies and findings from other studies. The Plan identifies several likely management actions that would be used to address specific types of "impact problems." The intention is to identify the "limits of

acceptable change" (standards), use monitoring to determine if impacts are approaching those levels, and then design management actions to reduce the impact to acceptable levels (when necessary). The following define how indicators, standards, and capacities were developed in this Plan:

- **Monitoring Indicators** identify the key conditions to monitor over time. Key considerations related to choosing indicators for the Plan included:
  - Indicators which reflect issues that visitors, NID or agencies deemed important during the 2009 relicensing studies or subsequent recreation workgroup meetings;
  - Indicators which realistically portray important field conditions;
  - Indicators which efficiently measure specific conditions; and
  - Indicators which are likely to be correlated with several important impacts (if possible), and responsive to possible management actions.

- **Monitoring standards** define acceptable levels of each indicator condition. Key considerations related to developing and using monitoring standards in this Plan include:
  - Standards which are generally "yellow light triggers." Once they are reached, agencies and stakeholders will review additional management actions to reduce impacts;
  - Standards which are based on findings from the 2009 relicensing studies, studies from other recreation areas, and professional judgments;
  - Standards which are designed to be realistic and achievable, but not so easily met that managers are not striving to improve or enhance a resource;
  - A single "impact problem" (impacts exceeding a standard) which may trigger consideration of management actions, but these should also be reviewed in light of other monitoring findings (the entire suite of indicators); and
  - Standards which may be adjusted if future monitoring provides better information about user tolerances, use-impact relationships, or the effectiveness of other management actions to address potential impact problems.

Two primary types of indicators and standards were developed for this Plan: facility and social.

4.1.1 Facility Indicators, Standards and Methodology

Facility indicators focus on occupancy rates at developed recreation facilities, which include developed campsites, picnic sites, parking areas, and designated primitive camping areas. A facility's occupancy rate is calculated by dividing the number of occupied sites by the number of sites at the facility (design capacity), and is expressed as a percentage from 0 to 100.

At developed recreation facilities where daily occupancy records are kept (overnight facilities only), occupancy information will be calculated from host and/or reservation records(which are recorded on a daily basis) and compared to the design capacity. For this Plan, the key occupancy

calculation will utilize the peak season, which is defined as Memorial Day through Labor Day holiday weekends. Of note, for most of the developed facilities, the entire recreation season is generally from May through October when use declines significantly.

At the facilities without an on-site host (e.g., self-pay campgrounds, primitive campsites and day use facilities), occupancy information will be collected every 6th year, at a minimum, to coincide with the Form 80 monitoring cycle via an observation survey (Table 4.1-2). Based on the monitoring results, the frequency of monitoring may increase to every 3rd and 6th year (see Table 4.1-2 for details). These occupancy estimates will compare observed use levels with design or physical site capacities during peak use periods.

Form 80 requirements focus on annual recreation use estimates in RDs, number and type of recreation facilities, and recreation facility occupancy during normal weekends (i.e., non-holiday weekends).

The detailed facility monitoring indicators, methods, triggers and triggered actions are provided in Table 4.1-1 and 4.1-2.

4.1.1.1 Suitability and Feasibility Analysis

Before site development planning, the monitoring program provides for a feasibility and suitability analysis to determine if site development is possible at a Project reservoir or Project reservoirs within a facility monitoring grouping (Table 4.1-3). A proposed development will be considered suitable and feasible, if the proposal meets all of the following criteria; and, on NFS land, NID and the Forest Service mutually agree that the following criteria have been met.

1) Development is practical and reasonable based on the site conditions;
2) Development is appropriate for the ROS Class setting established for the lands; and
3) Development is appropriate for the level of use desired based on direction by any applicable land management plans.

Please refer to Tables 4.1-1 and 4.1-2 for when a suitability and feasibility analysis is required according to the facility monitoring methods by type of facility (hosted versus non-hosted).

Table 4.1-1. Monitoring indicators, methods, triggers and triggered actions for hosted/reservation campgrounds and self-pay/no-host campgrounds, day use facilities and primitive campsites.

HOSTED/RESERVATION CAMPGROUNDS		
Monitoring Indicator and Conditions		• INDICATOR: Non-holiday weekend day (Friday and Saturday) occupancy • SEASON: Memorial Day to Labor Day holiday weekends • CONDITIONS: ➢ The single highest and lowest daily occupancies will be omitted from the average occupancy calculation to minimize the influence of anomalous days (i.e. bad weather, events). ➢ Host sites are exempt from this annual average peak season combined occupancy calculation. ➢ If the July 4th holiday falls on a Wednesday, then both the weekend prior to and following the holiday will be considered "holiday" weekends and excluded from the trigger calculation. ➢ The occupancy calculation will only include days when the facilities are open. ➢ If, in any year, the monitoring season at a facility grouping includes less than 10 days when the facility is open, then the year will be excluded from the trigger monitoring evaluation.
Phase 1	Method 1	• DATA COLLECTION METHODS: 1) Family Campgrounds: daily occupancy collected by host/caretaker; and 2) Group Campgrounds: daily paid reservation records. *Note: Any unoccupied, but reserved site will be considered "occupied" for the trigger calculation.*
	Trigger 1	• 95% Average Seasonal Occupancy in 1 year for combined facilities in the same grouping (see Table 4.1-2 for groupings).
	Action if Trigger 1 is **Not** Met	• Continue monitoring method for Trigger 1.
	Action if Trigger 1 is Met	• Perform Feasibility-Suitabilty[1] analysis no later than the calendar year after Trigger 1 is met. • Begin Phase 2 monitoring method. *Note: If Trigger 2 (below) is also met during the Phase 1 monitoring period, then implement Phase 2 Actions without conducting Phase 2 monitoring.*
Phase 2	Method 2	• DATA COLLECTION METHODS: 1) Family Campgrounds: daily occupancy collected by host/caretaker; and 2) Group Campgrounds: daily paid reservation records. *Note: Any unoccupied, but reserved site will be considered "occupied" for the trigger calculation.*
	Trigger 2	• 95% Average Seasonal Occupancy in 3 years out of 6 consecutive year period for combined facilities in the same grouping (see Table 4.1-2 for groupings). *Note: includes the year trigger 1 was met if within the consecutive 6 year period.*
	Action if Trigger 2 is **Not** Met	• Continue monitoring method for Trigger 2.
	Action if Trigger 2 is Met	• Start "Site Development Planning" (refer to Section 3.4.1 for details) for new facilities or implement recreation use management process[1] no later than the calendar year after Trigger 2 is met.
SELF-PAY/NO HOST CAMPGROUNDS, DAY USE FACILITIES, and PRIMITIVE CAMPSITES		
Monitoring Indicator and Conditions		• INDICATOR: Non-holiday Saturday occupancy • SEASON: Memorial Day to Labor Day holiday weekends • CONDITIONS: ➢ The single highest and lowest daily occupancies will be omitted from the average occupancy calculation to minimize the influence of anomalous days (i.e. bad weather, events). ➢ If the July 4th holiday falls on a Wednesday, then both the weekend prior to and following the holiday will be considered "holiday" weekends and excluded from the trigger calculation. ➢ The occupancy calculation will only include days when the facilities are open. ➢ If, in any year, the monitoring season at a facility grouping includes less than 6 days when the facility is open, then the year will be excluded from the trigger monitoring evaluation and NID will monitor the facilities in the grouping in the following year.
Phase 1	Method 1	• DATA COLLECTION METHODS: On-site observations every 6th year concurrent with FERC Form 80 reporting cycle.
	Trigger 1	• 95% Average Seasonal Occupancy during the every 6th year observation for combined facilities in the same grouping (see Table 4.1-2 for groupings).
	Action if Trigger 1 is **Not** Met	• Revert back to Phase 1 monitoring (every 6th year concurrent with FERC Form 80 reporting cycle).
	Action if Trigger 1 is Met	• Perform Suitability-Feasibility analysis no later than the calendar year after Trigger 1 is met. • Begin Phase 2 monitoring.
Phase 2	Method 2	• DATA COLLECTION METHOD: Increase on-site observation frequency to every 3rd and 6th year concurrent with FERC Form 80 reporting cycle.
	Trigger 2	• 95% Average Seasonal Occupancy during both the 3rd and 6th year observations for combined facilities in the same grouping (see Table 4.1-2 for groupings).
	Action if Trigger 2 is **Not** Met	• Continue monitoring every 3rd and 6th year concurrent with FERC Form 80 reporting cycle.
	Action if Trigger 2 is Met	• Start "Site Development Planning" (refer to Section 3.4.1 for details) for new facilities or implement recreation use management process[1] no later than the calendar year after Trigger 2 is met.

[1] Examples include: educate visitors about other regional day-use areas; implementing more on-site management or user fees; encouraging off-peak usage, etc.

Table 4.1-2. Recreation facility monitoring groupings and indicator capacities for hosted/reservation campgrounds versus self-pay/no host campgrounds, day use facilities, and primitive campsites for the Yuba-Bear Hydroelectric Project.

Monitoring Facility Type	Facility Type	Grouping	Project Reservoir	Facility Name	Indicator Capacity		
					Camp Units	Picnic Units	Parking Spaces
Hosted/Reservation Campgrounds	Family Campground	Jackson Meadows Recreation Area	Jackson Meadows	East Meadow Campground	45	--	--
				Pass Creek Campground	29	--	--
				Findley Campground	14	--	--
				Fir Top Campground	12	--	--
				Woodcamp Campground	19	--	--
		Rollins Reservoir Recreation Area	Rollins	Orchard Springs Campground	101	--	--
				Greenhorn Campground	79	--	--
				Peninsula Campground	67	--	--
				Long Ravine Campground	85	--	--
	Group Campground	Project Wide	Jackson Meadows	Aspen Group Campground	3	--	--
				Silvertip Group Campground	2	--	--
			Sawmill	Sawmill Lake Group Campground[1]	1	--	--
			Faucherie	Faucherie Lake Group Campground	2	--	--
Self Pay/No Host Campgrounds, Day Use Facilities, and Primitive Campsites	Family Campground	Bowman Lake Recreation Area	Bowman	Bowman Lake Campground	14	--	--
			Canyon Creek	Canyon Creek Campground	16	--	--
			Sawmill	Sawmill Lake Campground[1]	10	--	--
	Boat-in Campground	Jackson Meadows Recreation Area	Jackson Meadows	Jackson Point Boat-in Campground	10	--	--
	Developed Boat Launch	Jackson Meadows Recreation Area	Jackson Meadows	Pass Creek Boat Launch	--	--	43
				Woodcamp Boat Launch	--	--	36
		Rollins Reservoir Recreation Area	Rollins Reservoir	Orchard Springs Boat Launch	--	--	150
				Greenhorn Boat Launch	--	--	108
				Peninsula Boat Launch	--	--	50
				Long Ravine Boat Launch	--	--	72
	Day Use	Jackson Meadows Recreation Area	Jackson Meadows	Aspen Picnic Area	--	11	30
				Woodcamp Picnic Area	--	6	35
			Milton Diversion	Milton Day Use Area[1]	--	--	5
		Bowman Lake Recreation Area	Bowman	Inflow Day Use Area	--	--	10
			Sawmill	Dam Day Use Area	--	--	8
			Faucherie	Faucherie Day Use and Boat Launch	--	--	14
	Parking	Jackson Meadows Recreation Area	Jackson Meadows	Jackson Meadows Vista	--	--	8
	Primitive Campsites	Project Wide	Milton	Primitive campsites[1]	6	--	--
			Bowman	Bowman Lake primitive campsites[1]	14	--	--

[1] These facilities are proposed capital improvements and do not currently exist.

Page Left Blank

4.1.2 Social Indicators and Standards

Social indicators and standards focus on measures of interaction between recreation users in different settings, as listed below.

Perceived Crowding
Researchers have developed a relatively simple measure of perceived crowding (Heberlein and Vaske 1977). The question asks people to indicate how crowded the area was at the time of their visit. Responses are given on the scale below:

1	2	3	4	5	6	7	8	9
Not at all Crowded		Slightly Crowded			Moderately Crowded		Extremely Crowded	

This measure is simple and easy to apply. Two of the nine scale points on the crowding scale label the situation as uncrowded, while the remaining seven points label it as crowded to some degree. The scale can be analyzed from various perspectives, but has traditionally been collapsed into a two variables (not crowded versus any degree of crowding; the method used here). This provides a conceptually meaningful break point between those who labeled the situation as not at all crowded (scale points 1 and 2, a positive evaluation), and those who labeled the situation as slightly, moderately, or extremely crowded (scale points 3 through 9, a negative evaluation).

Five distinct categories of crowding have been identified when the scale was collapsed into the two variables (i.e., uncrowded versus crowded) (Shelby et al., 1989):

- Under 35% - No crowding: Relatively unique low-density experiences
- 36 to 50% - Low normal: Unlikely to be a problem
- 51 to 65% - High normal: experiences approaching capacity
- 66 to 80% - Over capacity: management probably needed
- Over 80% - Greatly over capacity: manage for high density or a sacrifice area

Future monitoring will measure perceived crowding during the “every-12 years” user survey; the survey will measure crowding on weekdays and weekends among land-based and boating-based users.

Conflicts or Problems with Other Recreation Users
Conflicts or problems with other recreation users refer to the proportion of users that report these incidents during their trips on a user survey. This variable will be measured every 12 years as a component of the user survey. A typical survey question to assess conflict is as follows:

- Did you or your group experience any problems with other recreation users during your current visit to the Study Area? If you had problems, please identify the other group and describe the problem.

All social indicators and tolerances will be measured through the "every-12-year" recreation questionnaire survey, and then compared with standards in this Plan. All information will be summarized in reports produced every 12 years (coinciding with every other six-year cycle of the Form 80 reporting requirements). A summary of the social indicators and standards is provided in Table 4.1-3.

Table 4.1-3. Social monitoring indicators and standards summary.

Indicator	Monitoring Method	Standards (Trigger)	Potential Management Actions
Perceived Crowding	**Questionnaire Survey:** Percent of visitors reporting some degree of crowding on the questionnaire; 3 or higher on 9-point scale on user surveys over the survey season.	>65% on weekdays or weekends	Land-Based Action: • Provide additional visitor management and/or enforcement. • Provide adequate buffers between uses. • Expand and/or develop new facilities/use areas. • Provide increased visitor education. Reservoir-Based Actions: • Provide additional visitor management and/or enforcement to help ensure that uses do not exceed acceptable capacity standards. • Limit boat speed limits. • Provide specific water surface zones. • Establish specific (i.e. circular) travel patterns for boats. • Increase boat ramp efficiency (add ramp lanes, boarding docks, parking spaces, etc.). • Provide increased boater education.
Conflicts or Problems with Other Groups	**Questionnaire Survey:** Percent of visitors reporting a conflict with other users over the survey season.	> 20% on weekdays or weekends	

4.2 Monitoring Data Collection Methods

Form 80 requirements focus on annual recreation use estimates in RDs, number and type of recreation facilities, and recreation facility occupancy during normal weekends (i.e., non-holiday weekends).

As summarized below and in Table 4.2-1, several methods will be used to collect information on the recreation monitoring indicators and standards identified in Section 4.1.

Table 4.2-1. Monitoring data collection methods, frequencies, and indicator information.

Monitoring Indicator Collection Method	Monitoring Frequency	Monitoring Indicators and Other Information to be Collected
Collection of Existing Available Daily Annual Occupancy Information	Every 6 years compile annual information during FORM 80 monitoring year	*Indicators:* Occupancy information for all developed facilities from fee receipts.
		Indicators: Recreation-related accident information from NID and Cal Boating, County Sheriff.
Recreation Observation Survey	Every 6 Years[1] during non-holiday during Memorial Day through Labor Day	*Indicators:* Non-holiday weekend facility occupancy for sites not collected from fee receipts - designated primitive campsites/areas, picnic areas and parking areas. *Other:* VAOT, PAOT, and recreation activity information.
Recreation Questionnaire Surveys	Every 12 years during recreation seasons during FORM 80 monitoring year	*Indicators:* Conflicts with other groups, and feelings of crowding. *Other:* Primary and overall activities, and desired facility or management changes.

[1] At a minimum, the observation surveys will be conducted every 6th year in concurrence with the FERC Form 80 monitoring schedule. However, based on the monitoring program methodology in Section 4.1.1, the frequency of these surveys may increase to every 3rd year under circumstances detailed in Section 4.1.1.

4.2.1 Annually Available Information

Occupancy information at hosted, fee and/or reservation sites will be collected by either NID or its contractors (concessionaire) and be used to calculate facility occupancy. Refer to Table 4.2-2 for details on which Project recreation facilities have annually available information.

4.2.2 Recreation Observation Survey

The observation survey will collect recreation use information for facilities where on-site hosts are not present and thus, daily occupancy information is not available. These facilities include self-pay campgrounds, designated primitive campsites, picnic/day use sites, boat launches, and parking areas. The recreation observation survey will also measure vehicles, trailers, boats, people, and activity information "at-one-time" during the "every-six-years" effort. At a minimum, these observations will be performed every sixth year (concurrent with the FERC Form 80 monitoring cycle). NID will perform the observation survey on Saturdays during the peak recreation season from Memorial Day to Labor Day holiday weekends. Note that NID will conduct the observation survey on three holiday weekend days – one day each during Memorial Day, July 4th, and Labor Day weekends for FERC-required Form 80 purposes; however this data will not be used as part of the facility monitoring trigger calculations (Section 4.1.1). Refer to Table 4.2-2 for the Project recreation facilities where NID will conduct the observation survey.

4.2.3 Recreation Questionnaire Survey

NID shall, concurrent with every second Form 80 Recreation Report (every 12 years), file with FERC a report on recreational questionnaire surveys at Project recreation facilities. The purpose of the report is to measure the social indicators and, if needed, tolerance information, focusing on social impacts described in Section 4.1.1-2 (i.e., crowding). In addition, the survey will collect other information (e.g., visitors' primary and overall activity participation and evaluations of management actions and facilities). Notably, this focused survey (1 to 2 pages) will include only questions necessary to address the social indicators, management actions, facilities and basic recreation use information. The survey will be conducted every 12 years and coincide with FERC's Form 80 reporting requirement cycle.

The questionnaire survey will be a roving survey, whereby NID will visit the sites for a short period of time (30 minutes) during peak use periods (i.e., holiday and non-holiday weekends) during the peak recreation season (Memorial Day through Labor Day holiday weekends). NID will perform the survey on 6 weekends (both Saturday and Sunday) and 6 weekdays during the peak recreation season. Refer to Table 4.2-2 for details on which Project recreation facilities NID will conduct the questionnaire survey. Monitoring information collected at Pass Creek Boat Launch will specify which portion of the boat ramp (main, auxiliary, or the proposed parking expansion). NID does not propose to conduct questionnaire surveys at reservoirs that have less than 1,000 RDs (French Lake, Dutch Flat No. 2 Forebay and Chicago Park Forebay) since intercepting visitors at locations with such low use levels would be difficult and inefficient.

Three months prior to performing the questionnaire survey interviews, NID, in consultation with the Forest Service, shall develop a survey instrument for use during interviews; and the survey questions shall be focused on the monitoring indicators in this Plan, and is not to exceed 2 pages. The target number of survey interviews will be based on the most recent FERC Form 80 use report. NID shall stratify the number of survey interviews by reservoir according to the use levels at each reservoir as recorded in the most recent FERC Form 80 use report.

4.2.4 Trash and Human Waste Monitoring

NID shall monitor the presence of trash and human waste at all project recreation facilities that lack trash or restroom facilities to address potential recreation-related trash and/or human waste impacts. Trash and human waste monitoring will be done at Project reservoirs with undeveloped recreation use or at developed recreation sites that lack existing or proposed restroom or trash facilities. Monitoring will be done regularly throughout the open season as part of normal recreation management and maintenance of the facilities. NID will not collect quantitative data, but note when and where excessive trash is present and/or any human waste is observed. In addition, it is expected that the Forest Service would provide similar information that may have been noted during Forest Service patrols in the Project Area. At annual coordination meetings, NID will then provide this information to the Forest Service for impacts noted on NFS land. Action to address any noted impacts will be determined during annual coordination or more frequent meetings; and may include increased monitoring of sites with noted trash and/or human waste impacts, development of restroom buildings, or a change in management of the site or facility.

Table 4.2-2. Type of monitoring methods by Project reservoir and site.

Recreation Area	Project Reservoir	Recreation Facility	Type of Recreational Development	Monitoring Method				
				Annual Daily Occupancy Records	Every 6th Year Saturday Observations[1]	Questionnaire Survey	Trash Monitoring	Human Waste Monitoring
Jackson Meadows Recreation Area	Jackson Meadows Reservoir	East Meadow Campground	Developed	X	--	X	--	--
		Pass Creek Campground	Developed	X	--	X	--	--
		Pass Creek Boat Launch	Developed	--	X	X	--	--
		Pass Creek Overflow Campground	Developed	--	X		--	--
		Aspen Group Campground	Developed	X		X	--	--
		Aspen Picnic Area	Developed	--	X	X	--	--
		Jackson Meadows Vista	Developed	--	X	X	--	--
		Findley Campground	Developed	X	--	X	--	--
		Fir Top Campground	Developed	X	--	X	--	--
		Woodcamp Campground	Developed	X	--	X	--	--
		Woodcamp Picnic Area	Developed	--	X	X	--	--
		Woodcamp Boat Launch	Developed	--	X	X	--	--
		Silvertip Group Campground	Developed	X	--	X	--	--
		Jackson Point Boat-In Campground	Developed	--	X	X	X	X
	Milton Diversion Impoundment	Designated Primitive Campsites[2]	Primitive	--	X	X	X	X
		Shoreline Day Use Area[2]	Developed	--	X	X	X	--
French Lake Recreation Area	French Lake	No developed facilities	Undeveloped	--	--	--	--	--
Bowman Lake Recreation Area	Bowman Lake	Bowman Lake Campground	Developed	--	X	X	X	--
		Designated Primitive Campsites[2]	Primitive	--	X	X	X	X
		Inflow Day Use Area	Developed	--	X	X	X	--
	Sawmill Lake	Sawmill Lake Campground[2]	Developed	--	X	X	X	--
		Sawmill Lake Group Campground[2]	Developed	X	--	X	X	--
		Dam Day Use Area	Undeveloped	--	X	X	X	X
	Canyon Creek (non-reservoir)	Canyon Creek Campground	Developed	--	X	X	X	--
	Faucherie Lake	Faucherie Lake Group Campground	Developed	X	--	X	--	--
		Faucherie Lake Day Use & Boat Launch	Developed	--	X	X	X	--
Dutch Flat Recreation Area	Dutch Flat No. 2 Forebay	Shoreline	Undeveloped	--	X	--	X	X
	Dutch Flat Afterbay	Shoreline	Undeveloped	--	X	X	X	X
	Chicago Park Forebay	Forebay Shoreline	Undeveloped	--	X	--	X	X
		Powerhouse Area	Undeveloped	--	X	X	X	X

Table 4.2-2. (continued)

Recreation Area	Project Reservoir	Recreation Facility	Type of Recreational Development	Monitoring Method				
				Annual Daily Occupancy Records	Every 6th Year Saturday Observations[1]	Questionnaire Survey	Trash Monitoring	Human Waste Monitoring
Rollins Reservoir Recreation Area	Rollins Reservoir	Orchard Springs Campground	Developed	X	--	X	--	--
		Orchard Springs Boat Launch	Developed	--	X	X	--	--
		Greenhorn Campground	Developed	X	--	X	--	--
		Greenhorn Picnic Area	Developed	--	X	X	--	--
		Greenhorn Boat Launch	Developed	--	X	X	--	--
		Peninsula Campground	Developed	X	--	X	--	--
		Peninsula Boat Launch	Developed	--	X	X	--	--
		Long Ravine Campground	Developed	X	--	X	--	--
		Long Ravine Boat Launch	Developed	--	X	X	--	--

[1] At a minimum, these observation surveys will be conducted every 6th year in concurrence with the FERC Form 80 monitoring schedule. However, based on the monitoring program methodology in Section 4.1.1, the frequency of these surveys may increase to every 3rd year if certain triggers are met.

[2] These facilities do not currently exist, but are planned improvements as part of this Plan. Final site capacity may change depending upon site conditions.

SECTION 5

CONSULTATION, REPORTING AND PLAN REVIEW

Over the term of the new license, additional consultation may occur, as necessary to ensure that the goals and objectives of the Plan are being met and the proposed measures are implemented. Consultation activities that will be conducted during the new license terms will include an Annual Coordination Meeting and periodic reporting of recreation use as described below.

5.1 Annual Coordination Meeting

Each year during the term of the license, NID will arrange to meet with interested resource agencies (Forest Service and BLM at a minimum) for an Annual Coordination Meeting to discuss the measures needed to ensure public safety, and protection and utilization of the recreation facilities listed in of this Plan. The date of the meeting will be mutually agreed to by NID, Forest Service, and BLM, but in general will be held within the first 90 days of each calendar year. A detailed agenda will be provided to the Forest Service and BLM when the meeting date is proposed to assure that the appropriate parties are present.

During the annual meeting with the Forest Service and BLM, NID will review the status of recreation projects from the previous year. This will include rehabilitation of existing recreation facilities, the establishment of new recreation facilities, and any other recreation measures or programs that were implemented. The Forest Service and BLM will provide NID with any available recreational use data from the previous year for the facilities listed in this Plan.

At the coordination meetings, NID will provide the Forest Service and BLM with a summary list of the recreation facilities scheduled for rehabilitation and any other Plan measures or programs to be implemented. Work on recreation facilities scheduled for the forthcoming years will be presented to the Forest Service and BLM for review and will include logistical and coordination planning, and an implementation schedule. NID and the Forest Service and BLM will identify any coordination needs in regards to other resource agency projects being implemented in the area. Permitting requirements and other key resources that will need to be protected from potential impacts associated with the implementation of the scheduled recreation projects will be addressed.

NID will review with the Forest Service and BLM the long-term planning and implementation schedule for the rehabilitation and heavy maintenance of existing recreation facilities, and development of the new capital improvements proposed in this Plan.

NID and the Forest Service and BLM may consider potential adjustments in specific actions or schedules, if appropriate, on NFS and BLM land. The Forest Service and BLM will be asked to approve any revisions to the schedule for projects on NFS or BLM land, and the revised schedule will be submitted to the FERC. Within 60 days following such consultation, NID shall file with the FERC evidence of the meeting, which summarizes any comments made by the Forest Service and BLM, and any agreements or Plan revisions that were reached by NID and the Forest

Service and BLM. The Annual Coordination Meeting is a minimum requirement; and it is anticipated that meetings will occur throughout each year as needed to implement the recreation projects.

Annual consultation meetings required by this condition, and similar consultation conditions in other relevant resources areas should be coordinated and combined wherever practical, to increase efficiency and effectiveness. Documentation of these meetings may be combined and reported together by NID.

5.2 Reporting

NID shall provide the following recreational reports.

5.2.1 Recreational Use Report

Current FERC regulations require that NID prepare a comprehensive Recreation Report (Form 80) every six years after license issuance. NID shall prepare the standard Form 80 report and shall also provide the following recreation-related information in a comprehensive Project recreational use report. This comprehensive report shall include the following items:

- FERC Form 80 report;
- Summary of previous six years of Project recreation fee/occupancy indicator information;
- Summary of Recreation Observation Survey indicator and other data collected during the 6 year period, including VAOT and PAOT capacity information;
- Proposed changes in Project facilities and/or Project management, if appropriate, based on monitoring results.

5.2.2 Visitor Survey Report

Every 12 years, NID shall complete a recreation questionnaire survey report aimed to determine if existing recreation facilities and opportunities are adequate to meet user preferences for recreation facilities and opportunities. Based on the survey, NID shall prepare a report including objectives, methods, results, recommended reasonable resource management measures (which shall include the need for recreation facility modification or new facilities) where appropriate, and a schedule of implementation for recommended resource management measures, and shall provide a draft of the final report to the Forest Service and other applicable agencies as appropriate for a 60-day review. NID shall file the report, including evidence of consultation, with FERC concurrent with the next Form 80 filing. NID shall implement those measures approved by FERC.

5.3 Plan Revisions

NID, in consultation with the Forest Service and BLM and other applicable agencies as appropriate, will review, update, and/or revise the Plan if changes in recreation use or resources create the need to update the plan. A need may arise from recreation monitoring results, from day-to-day operation and maintenance of the Project, or, from other unanticipated events that may arise during the license period. Examples of such events that may trigger a need to update the plan include unforeseen recreation needs, changes in visitor preferences and attitudes, new recreation technologies, significant changes in the amount and types of recreation uses, or revisions and updates to Forest Service, BLM, or other applicable management plans.

Any updates to the Plan would be prepared in consultation with Forest Service and appropriate agencies, as appropriate. A minimum of 30 days will be allowed for the Forest Service and other agencies to comment and make recommendations before NID files the updated Plan with FERC. Updates to the Plan that are on NFS lands will be approved by the Forest Service prior to filing with FERC. NID would include documentation of consultation, packaged with the updated Plan filed with FERC. If NID does not adopt a particular agency recommendation, the filing of the updated Plan would include the reasons for not doing so.

Page Left Blank

SECTION 6

REFERENCES CITED

California Department of Boating and Waterways. 1991. Layout, Design and Construction Handbook for Small Craft Boat Launching Facilities. Sacramento, California. 40 pp.

California Department of Fish and Game (CDFG) 2007. http://www.dfg.ca.gov/. A Guide to High Mountain Lakes and Streams of the Sierra Nevada. A Publication of the California Department of Fish and Game, USDA-Forest Service, and National Park Service. http://www.dfg.ca.gov/fishing/html/Publications/Publications_0.htm.

Heberlein, T.A., Vaske, J. 1977. Crowding and visitor conflict on the Bois Brule River. Report WISC WRC 77-04. Madison, WI: University of Wisconsin, Water Resources Center.

Manning, R.E. 1999. Studies in Outdoor Recreation: Search and Research for Satisfaction. Oregon State University Press. Corvallis, OR.

_____. 2007. Parks and Carrying Capacity: Commons without tragedy. Island Press. Washington DC. 313 p.

Nevada County. 2004. Nevada County General Code, Chapter IX: Waterways and Watercraft, Article 13. Nevada County Planning Department. Nevada City, California.

Nevada Irrigation District (NID). 2000. Yuba-Bear River Project FERC No. 2266: Recreation Plan, Revised Exhibit R.

_____ 2008. Pre-Application Document: Section 7.8 - Recreation Resources. Prepared by HDR|DTA for Nevada Irrigation District. Grass Valley, California.

_____ 2010. Recreation Use and Visitor Survey Study Technical Memorandum (2009). Prepared by HDR|DTA for Nevada Irrigation District. Grass Valley, California.

Shelby, B. and T. A. Heberlein. 1986. Carrying Capacity in Recreation Settings. Oregon State University Press. Corvallis, OR.

Shelby, B., J.J. Vaske, and T.A. Heberlein. 1989. Comparative analysis of crowding in multiple locations: Results from fifteen years of research. Journal of Leisure Research. 11: 269-291.

Stankey, G.H., D.N. Cole, R.C. Lucas, M.E. Petersen, and S.S. Frisell. 1985. The Limits of Acceptable Change (LAC) System for Wilderness Planning. General Technical Report INT-176. USDA Forest Service. Intermountain Forest and Range Experiment Station. Ogden, UT.

State of California. 2008. Assembly Bill No. 2065 – An act to add Section 2302 to the Fish and Game Code, relating to invasive aquatic species. Sacramento, California.

United States Department of Agriculture (USDA), Forest Service. 1986. 1986 ROS Book. Washington, D.C.

_____ 2006. Forest Service Outdoor Recreation Accessibility Guidelines (FSORAG). Washington, D.C.

United States Department of Agriculture (USDA), Forest Service, Tahoe National Forest (TNF). 1990. Tahoe National Forest Land and Resource Management Plan. Pacific Southwest Region. San Francisco, CA.

_____ 2007. Recreation Facility Analysis: 5-year Proposed Program of Work and Programmatic Effects of Implementation. Nevada City, CA.

United States Department of the Interior (USDOI), Bureau of Land Management (BLM). 2008. Sierra Resource Management Plan and Record of Decision. Folsom Field Office. Folsom, CA.

United States Department of Justice (USDOJ). 1994. Code of Federal Regulations. 28 CFR Part 36, ADA Standards for Accessible Design, Appendix A: Americans with Disabilities Act Accessibility Guidelines (ADAAG) for Buildings and Facilities. Washington, D.C.

Yuba-Bear Hydroelectric Project
FERC Project No. 2266-096

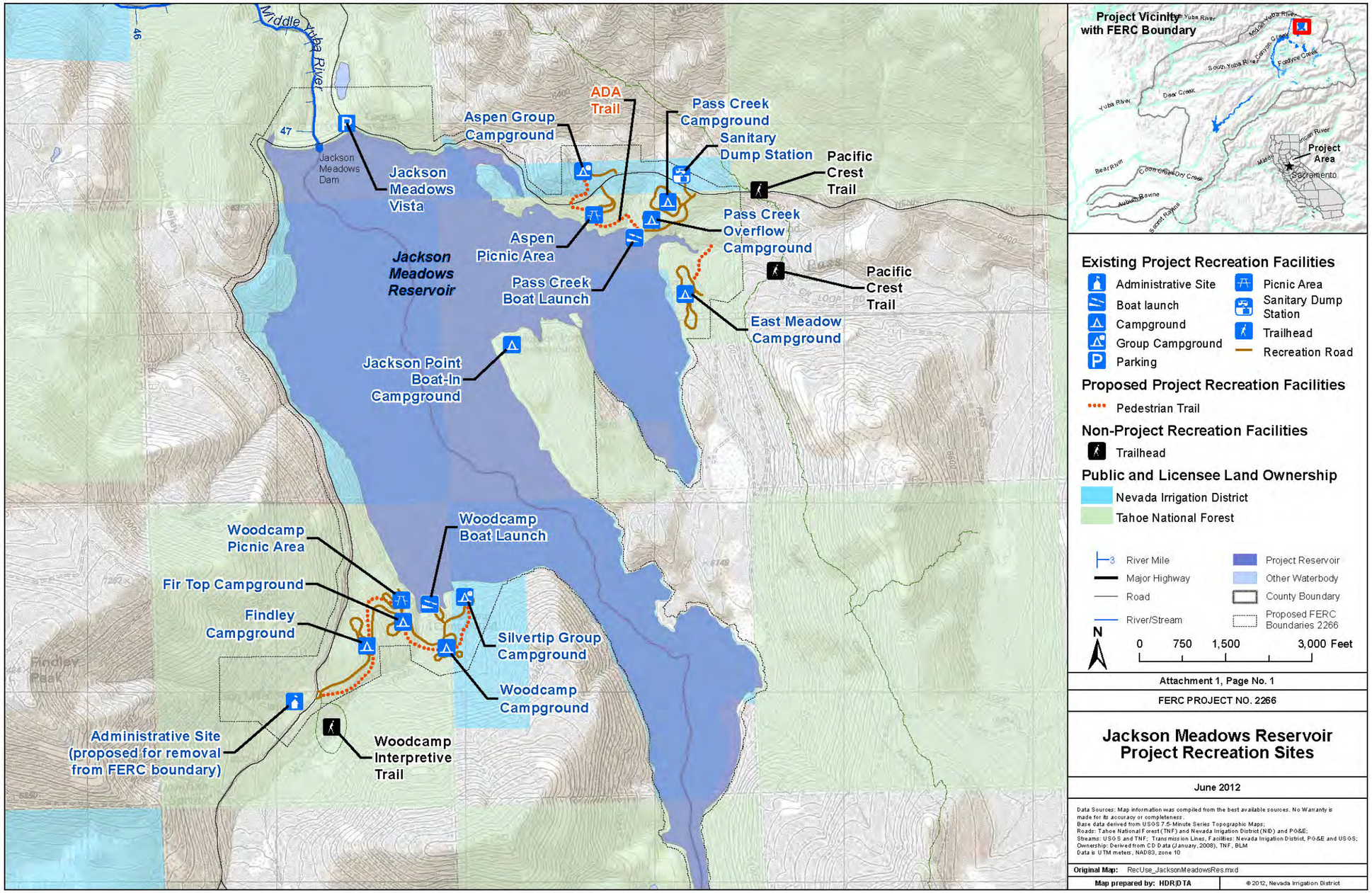
Amended Recreation Facilities Plan

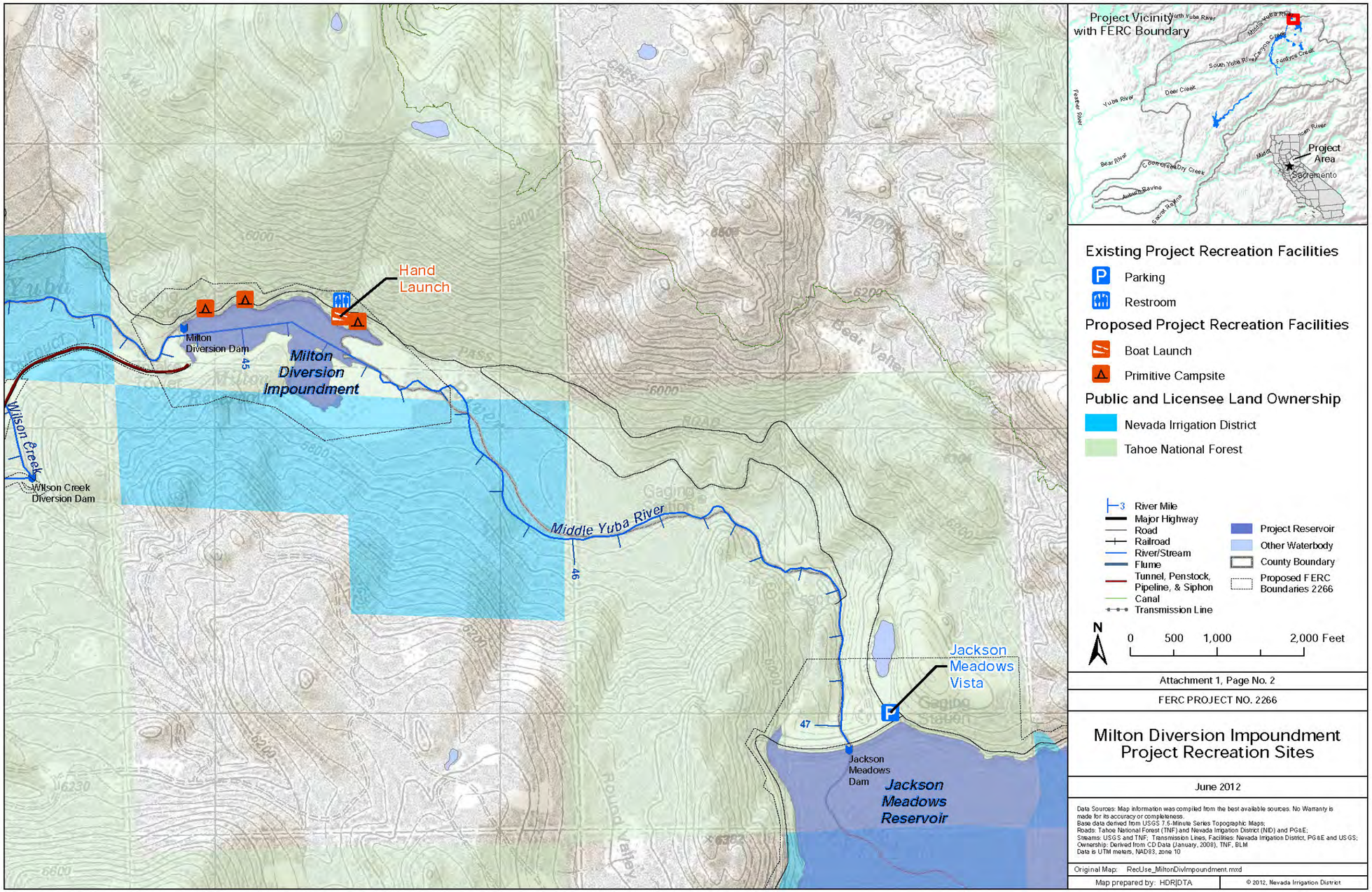
Attachment A

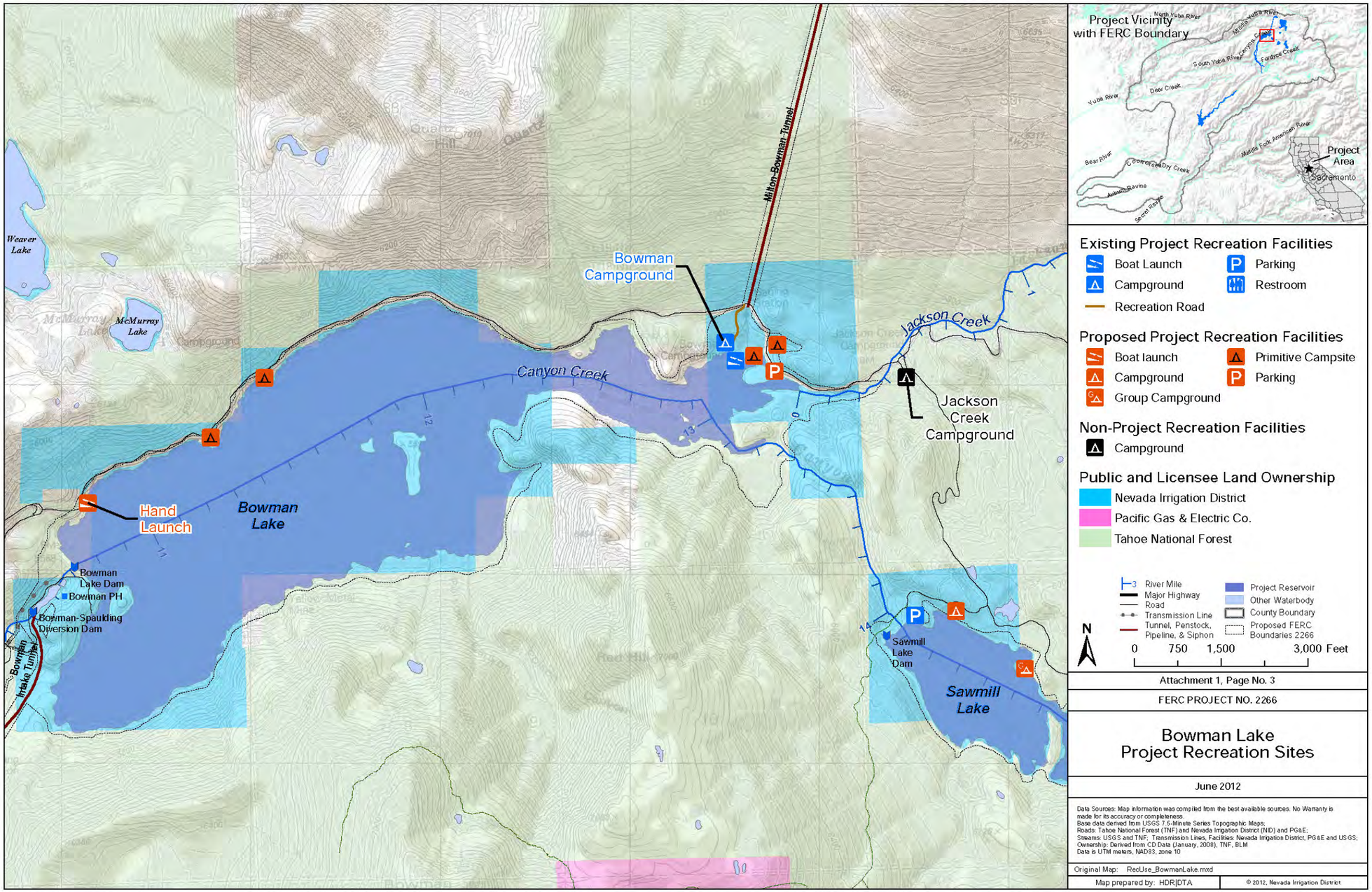
Yuba-Bear Hydroelectric Project Reservoir Recreation Maps

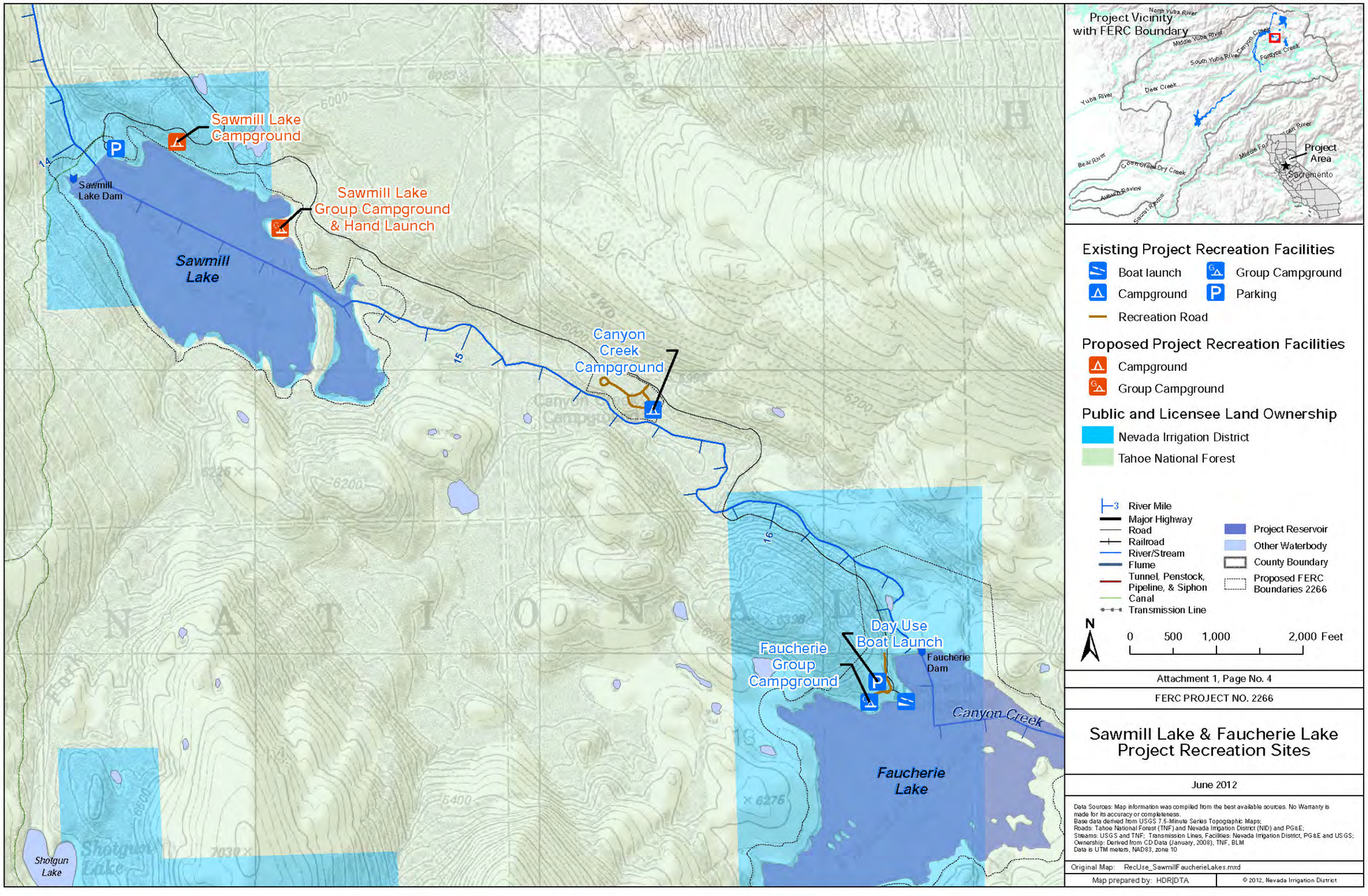
List of Project Reservoir Recreation Maps

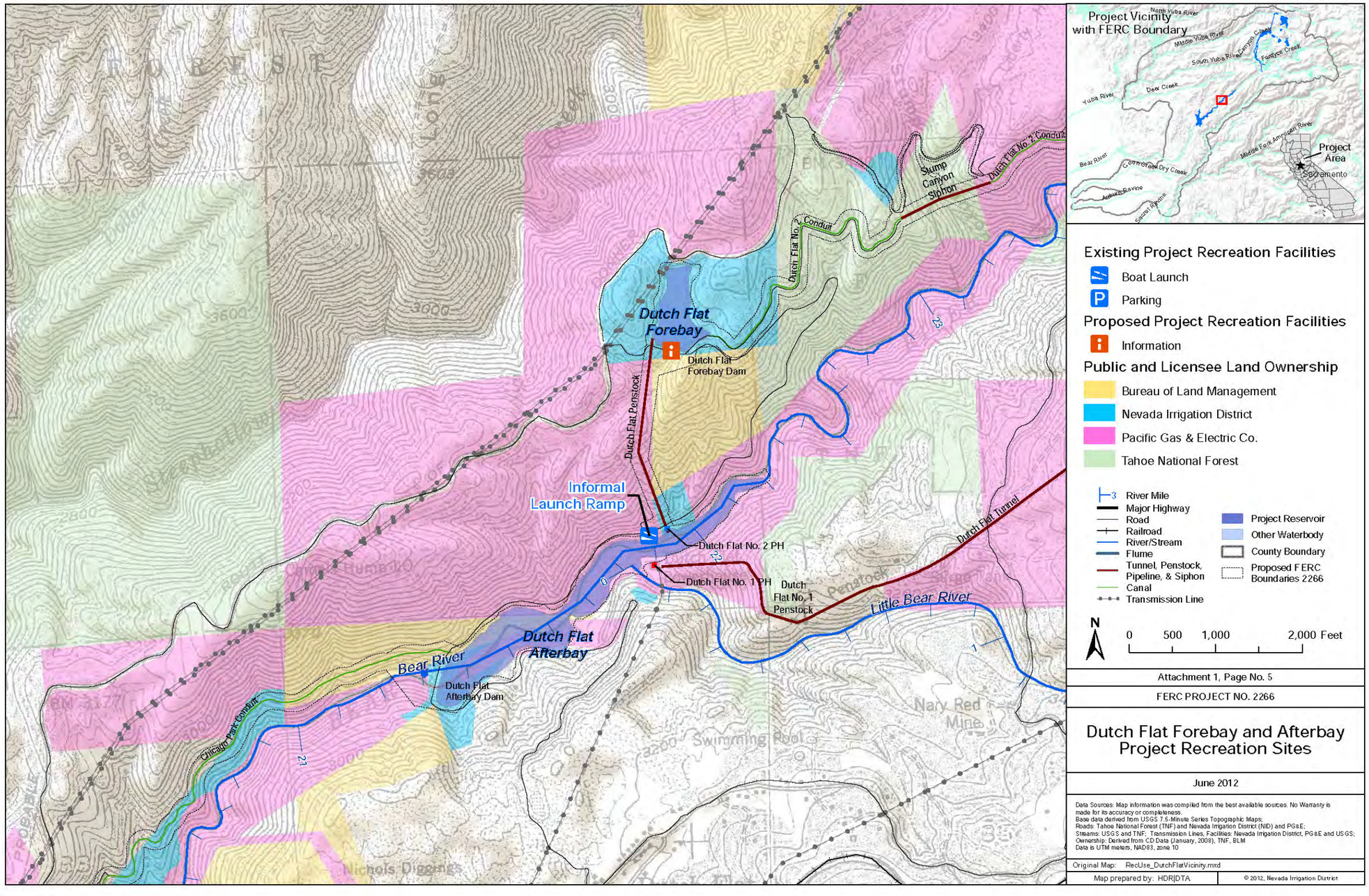
Page Left Blank

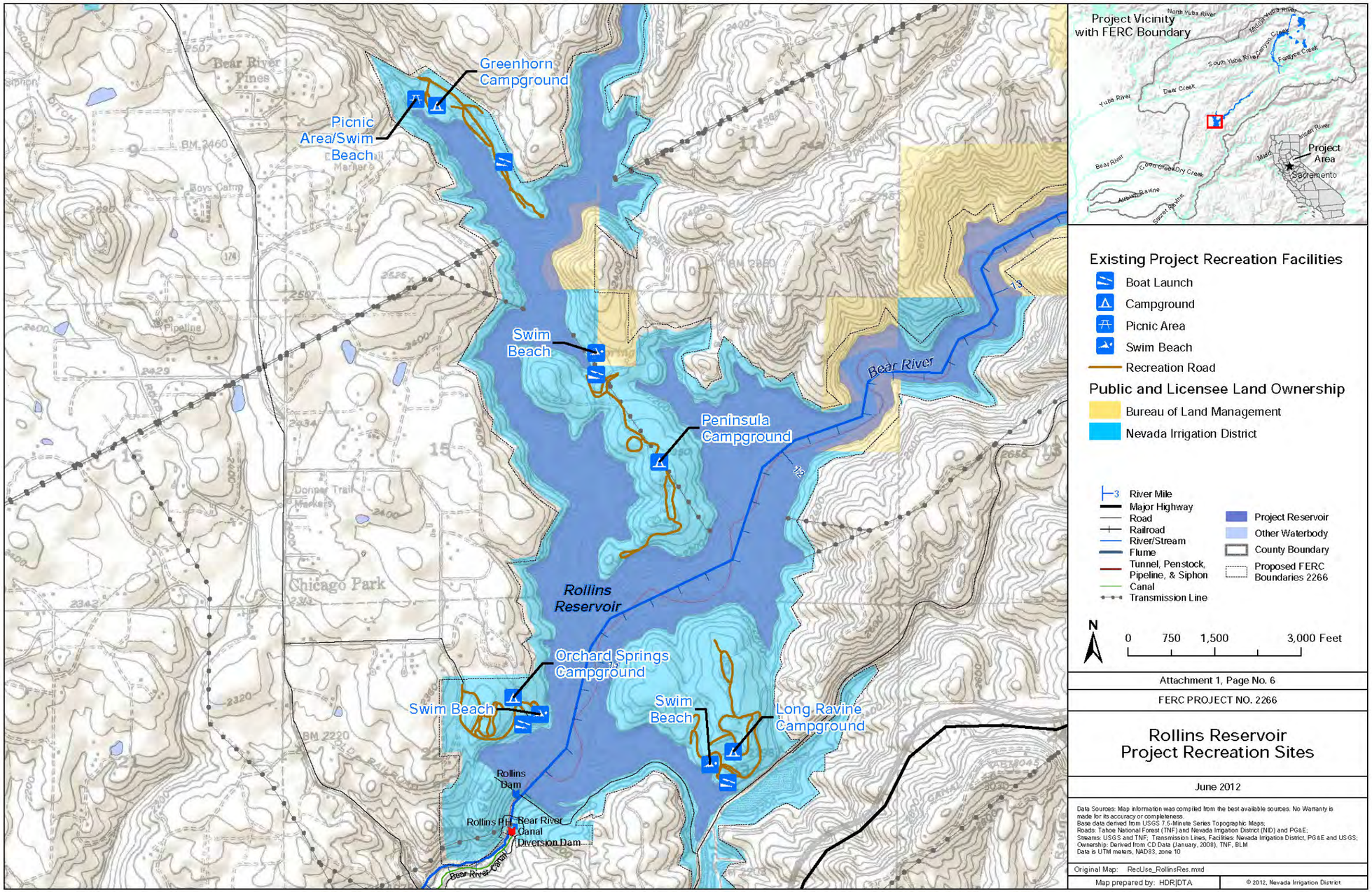

Middle Yuba River
46
47
Jackson Meadows Dam
Jackson Meadows Vista
Aspen Group Campground
ADA Trail
Pass Creek Campground
Sanitary Dump Station
Pacific Crest Trail
Pass Creek Overflow Campground
Aspen Picnic Area
Jackson Meadows Reservoir
Pass Creek Boat Launch
East Meadow Campground
Jackson Point Boat-In Campground
Woodcamp Boat Launch
Woodcamp Picnic Area
Fir Top Campground
Findley Campground
Silvertip Group Campground
Woodcamp Campground
Administrative Site (proposed for removal from FERC boundary)
Woodcamp Interpretive Trail
Findley Peak
Project Vicinity with FERC Boundary
Project Area
Sacramento
Existing Project Recreation Facilities
Administrative Site
Boat launch
Campground
Group Campground
Parking
Picnic Area
Sanitary Dump Station
Trailhead
Recreation Road
Proposed Project Recreation Facilities
Pedestrian Trail
Non-Project Recreation Facilities
Trailhead
Public and Licensee Land Ownership
Nevada Irrigation District
Tahoe National Forest
River Mile
Major Highway
Road
River/Stream
Project Reservoir
Other Waterbody
County Boundary
Proposed FERC Boundaries 2266
N
0 750 1,500 3,000 Feet
Attachment 1, Page No. 1
FERC PROJECT NO. 2266
Jackson Meadows Reservoir Project Recreation Sites
June 2012
Data Sources: Map information was compiled from the best available sources. No Warranty is made for its accuracy or completeness.
Base data derived from USGS 7.5-Minute Series Topographic Maps;
Roads: Tahoe National Forest (TNF) and Nevada Irrigation District (NID) and PG&E;
Streams: USGS and TNF; Transmission Lines, Facilities: Nevada Irrigation District, PG&E and USGS;
Ownership: Derived from CD Data (January, 2008), TNF, BLM
Data is UTM meters, NAD83, zone 10
Original Map: RecUse_JacksonMeadowsRes.mxd
Map prepared by: HDR|DTA
©2012, Nevada Irrigation District


Hand Launch
Milton Diversion Dam
Milton Diversion Impoundment
Wilson Creek Diversion Dam
Middle Yuba River
Jackson Meadows Vista
Jackson Meadows Dam
Jackson Meadows Reservoir
45
46
47
Project Vicinity with FERC Boundary
Project Area
Sacramento
Existing Project Recreation Facilities
Parking
Restroom
Proposed Project Recreation Facilities
Boat Launch
Primitive Campsite
Public and Licensee Land Ownership
Nevada Irrigation District
Tahoe National Forest
River Mile
Major Highway
Road
Railroad
River/Stream
Flume
Tunnel, Penstock, Pipeline, & Siphon
Canal
Transmission Line
Project Reservoir
Other Waterbody
County Boundary
Proposed FERC Boundaries 2266
N
0 500 1,000 2,000 Feet
Attachment 1, Page No. 2
FERC PROJECT NO. 2266
Milton Diversion Impoundment Project Recreation Sites
June 2012
Data Sources: Map information was compiled from the best available sources. No Warranty is made for its accuracy or completeness.
Base data derived from USGS 7.5-Minute Series Topographic Maps;
Roads: Tahoe National Forest (TNF) and Nevada Irrigation District (NID) and PG&E;
Streams: USGS and TNF; Transmission Lines, Facilities: Nevada Irrigation District, PG&E and USGS;
Ownership: Derived from CD Data (January, 2008), TNF, BLM
Data is UTM meters, NAD83, zone 10
Original Map: RecUse_MiltonDivImpoundment.mxd
Map prepared by: HDR|DTA
© 2012, Nevada Irrigation District


Weaver Lake
McMurray Lake
McMurray Lake Campground
Bowman Campground
Milton-Bowman Tunnel
Canyon Creek
Jackson Creek
Jackson Creek Campground
Hand Launch
Bowman Lake
Bowman Lake Dam
Bowman PH
Bowman-Spaulding Diversion Dam
Bowman Intake Tunnel
Sawmill Lake Dam
Sawmill Lake
Project Vicinity with FERC Boundary
North Yuba River
South Yuba River
Yuba River
Deer Creek
Fordyce Creek
Bear River
Dry Creek
Middle Fork American River
Auburn Ravine
Secret Ravine
Project Area
Sacramento
Existing Project Recreation Facilities
Boat Launch
Parking
Campground
Restroom
Recreation Road
Proposed Project Recreation Facilities
Boat launch
Primitive Campsite
Campground
Parking
Group Campground
Non-Project Recreation Facilities
Campground
Public and Licensee Land Ownership
Nevada Irrigation District
Pacific Gas & Electric Co.
Tahoe National Forest
River Mile
Major Highway
Road
Transmission Line
Tunnel, Penstock, Pipeline, & Siphon
Project Reservoir
Other Waterbody
County Boundary
Proposed FERC Boundaries 2266
N
0 750 1,500 3,000 Feet
Attachment 1, Page No. 3
FERC PROJECT NO. 2266
Bowman Lake
Project Recreation Sites
June 2012
Data Sources: Map information was compiled from the best available sources. No Warranty is made for its accuracy or completeness.
Base data derived from USGS 7.5-Minute Series Topographic Maps;
Roads: Tahoe National Forest (TNF) and Nevada Irrigation District (NID) and PG&E;
Streams: USGS and TNF; Transmission Lines, Facilities: Nevada Irrigation District, PG&E and USGS;
Ownership: Derived from CD Data (January, 2008), TNF, BLM
Data is UTM meters, NAD83, zone 10
Original Map: RecUse_BowmanLake.mxd
Map prepared by: HDR|DTA
© 2012, Nevada Irrigation District


Sawmill Lake Campground
Sawmill Lake Dam
Sawmill Lake Group Campground & Hand Launch
Sawmill Lake
Canyon Creek Campground
Canyon Creek
Day Use Boat Launch
Faucherie Group Campground
Faucherie Dam
Faucherie Lake
Shotgun Lake
Project Vicinity with FERC Boundary
Project Area
Sacramento
Existing Project Recreation Facilities
Boat launch
Group Campground
Campground
Parking
Recreation Road
Proposed Project Recreation Facilities
Campground
Group Campground
Public and Licensee Land Ownership
Nevada Irrigation District
Tahoe National Forest
River Mile
Major Highway
Road
Railroad
River/Stream
Flume
Tunnel, Penstock, Pipeline, & Siphon
Canal
Transmission Line
Project Reservoir
Other Waterbody
County Boundary
Proposed FERC Boundaries 2266
N
0 500 1,000 2,000 Feet
Attachment 1, Page No. 4
FERC PROJECT NO. 2266
Sawmill Lake & Faucherie Lake Project Recreation Sites
June 2012
Data Sources: Map information was compiled from the best available sources. No Warranty is made for its accuracy or completeness.
Base data derived from USGS 7.5-Minute Series Topographic Maps;
Roads: Tahoe National Forest (TNF) and Nevada Irrigation District (NID) and PG&E;
Streams: USGS and TNF; Transmission Lines, Facilities: Nevada Irrigation District, PG&E and USGS;
Ownership: Derived from CD Data (January, 2008), TNF, BLM
Data is UTM meters, NAD83, zone 10
Original Map: RecUse_SawmillFaucherieLakes.mxd
Map prepared by: HDR|DTA
© 2012, Nevada Irrigation District


Dutch Flat Forebay
Dutch Flat Forebay Dam
Dutch Flat Penstock
Informal Launch Ramp
Dutch Flat No. 2 PH
Dutch Flat No. 1 PH
Dutch Flat No. 1 Penstock
Dutch Flat Tunnel
Little Bear River
Dutch Flat Afterbay
Bear River
Dutch Flat Afterbay Dam
Chicago Park Conduit
Dutch Flat No. 1 Conduit
Dutch Flat No. 2 Conduit
Skump Canyon Siphon
Nary Red Mine
Swimming Pool
Project Vicinity with FERC Boundary
North Yuba River
Middle Yuba River
South Yuba River
Canyon Creek
Fordyce Creek
Deer Creek
Yuba River
Bear River
Middle Fork American River
Project Area
Sacramento
Existing Project Recreation Facilities
Boat Launch
Parking
Proposed Project Recreation Facilities
Information
Public and Licensee Land Ownership
Bureau of Land Management
Nevada Irrigation District
Pacific Gas & Electric Co.
Tahoe National Forest
River Mile
Major Highway
Road
Railroad
River/Stream
Flume
Tunnel, Penstock, Pipeline, & Siphon
Canal
Transmission Line
Project Reservoir
Other Waterbody
County Boundary
Proposed FERC Boundaries 2266
N
0 500 1,000 2,000 Feet
Attachment 1, Page No. 5
FERC PROJECT NO. 2266
Dutch Flat Forebay and Afterbay Project Recreation Sites
June 2012
Data Sources: Map information was compiled from the best available sources. No Warranty is made for its accuracy or completeness.
Base data derived from USGS 7.5-Minute Series Topographic Maps;
Roads: Tahoe National Forest (TNF) and Nevada Irrigation District (NID) and PG&E;
Streams: USGS and TNF; Transmission Lines, Facilities: Nevada Irrigation District, PG&E and USGS;
Ownership: Derived from CD Data (January, 2008), TNF, BLM
Data is UTM meters, NAD83, zone 10
Original Map: RecUse_DutchFlatVicinity.mxd
Map prepared by: HDR|DTA
© 2012, Nevada Irrigation District


Greenhorn Campground
Picnic Area/Swim Beach
Swim Beach
Peninsula Campground
Rollins Reservoir
Orchard Springs Campground
Swim Beach
Swim Beach
Long Ravine Campground
Rollins Dam
Rollins PH
Bear River Canal Diversion Dam
Bear River Canal
Bear River
Bear River Pines
Boys Camp
Chicago Park
Donner Trail
Pipeline
Project Vicinity with FERC Boundary
Project Area
Sacramento
Existing Project Recreation Facilities
Boat Launch
Campground
Picnic Area
Swim Beach
Recreation Road
Public and Licensee Land Ownership
Bureau of Land Management
Nevada Irrigation District
River Mile
Major Highway
Road
Railroad
River/Stream
Flume
Tunnel, Penstock, Pipeline, & Siphon
Canal
Transmission Line
Project Reservoir
Other Waterbody
County Boundary
Proposed FERC Boundaries 2266
N
0 750 1,500 3,000 Feet
Attachment 1, Page No. 6
FERC PROJECT NO. 2266
Rollins Reservoir
Project Recreation Sites
June 2012
Data Sources: Map information was compiled from the best available sources. No Warranty is made for its accuracy or completeness.
Base data derived from USGS 7.5-Minute Series Topographic Maps;
Roads: Tahoe National Forest (TNF) and Nevada Irrigation District (NID) and PG&E;
Streams: USGS and TNF; Transmission Lines, Facilities: Nevada Irrigation District, PG&E and USGS;
Ownership: Derived from CD Data (January, 2008), TNF, BLM
Data is UTM meters, NAD83, zone 10
Original Map: RecUse_RollinsRes.mxd
Map prepared by: HDR|DTA
© 2012, Nevada Irrigation District

Yuba-Bear Hydroelectric Project
FERC Project No. 2266-096

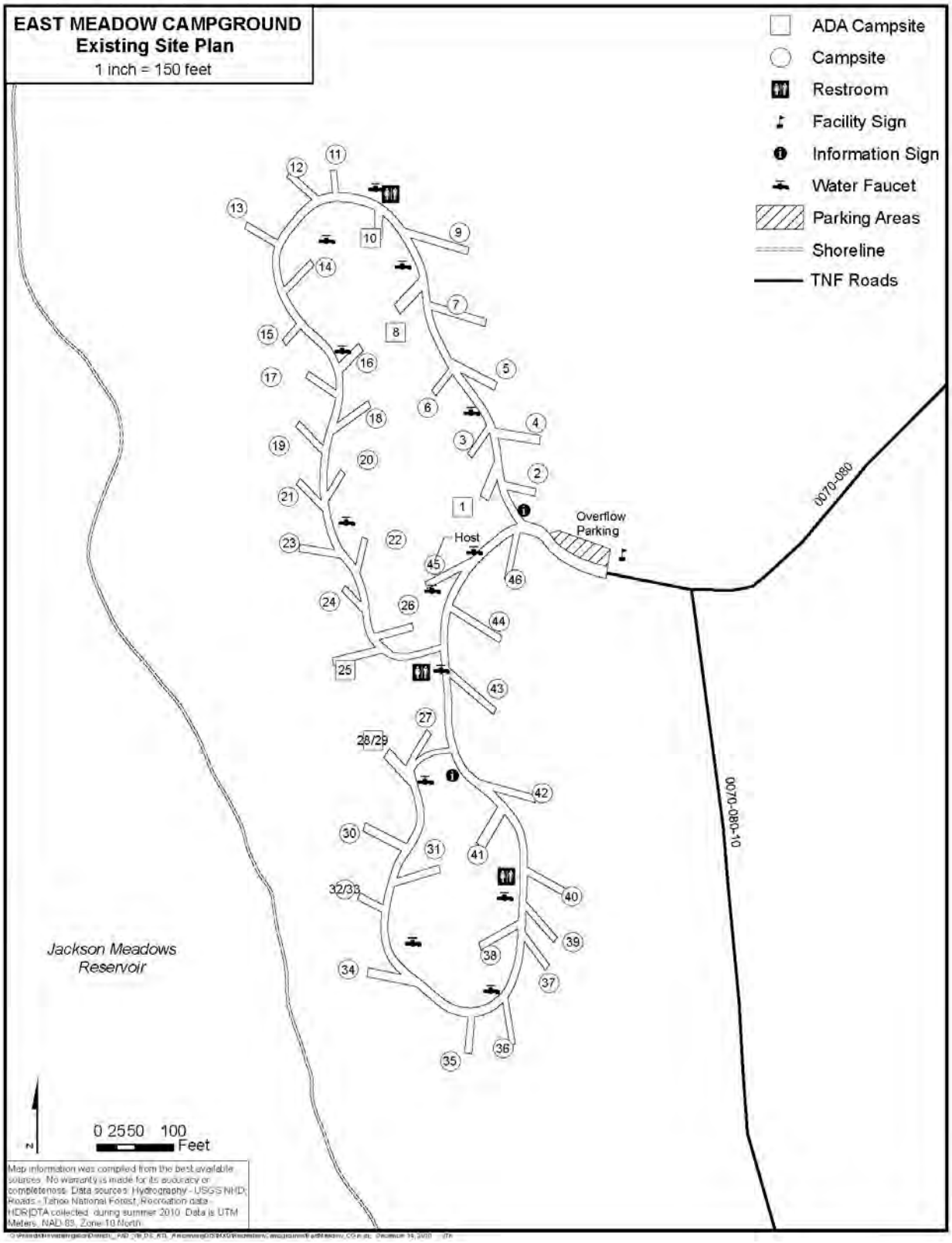
Amended Recreation Facilities Plan

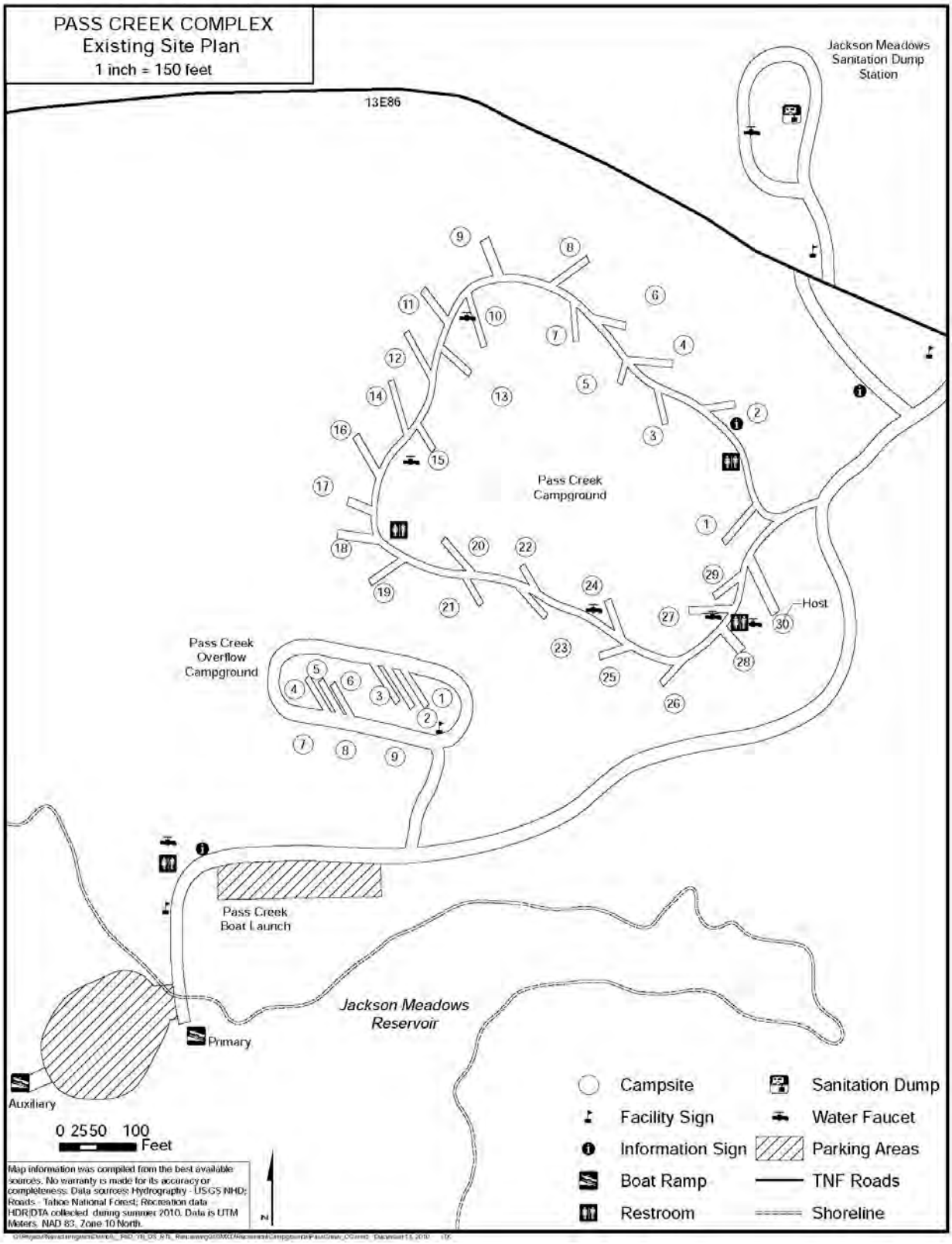
Attachment B

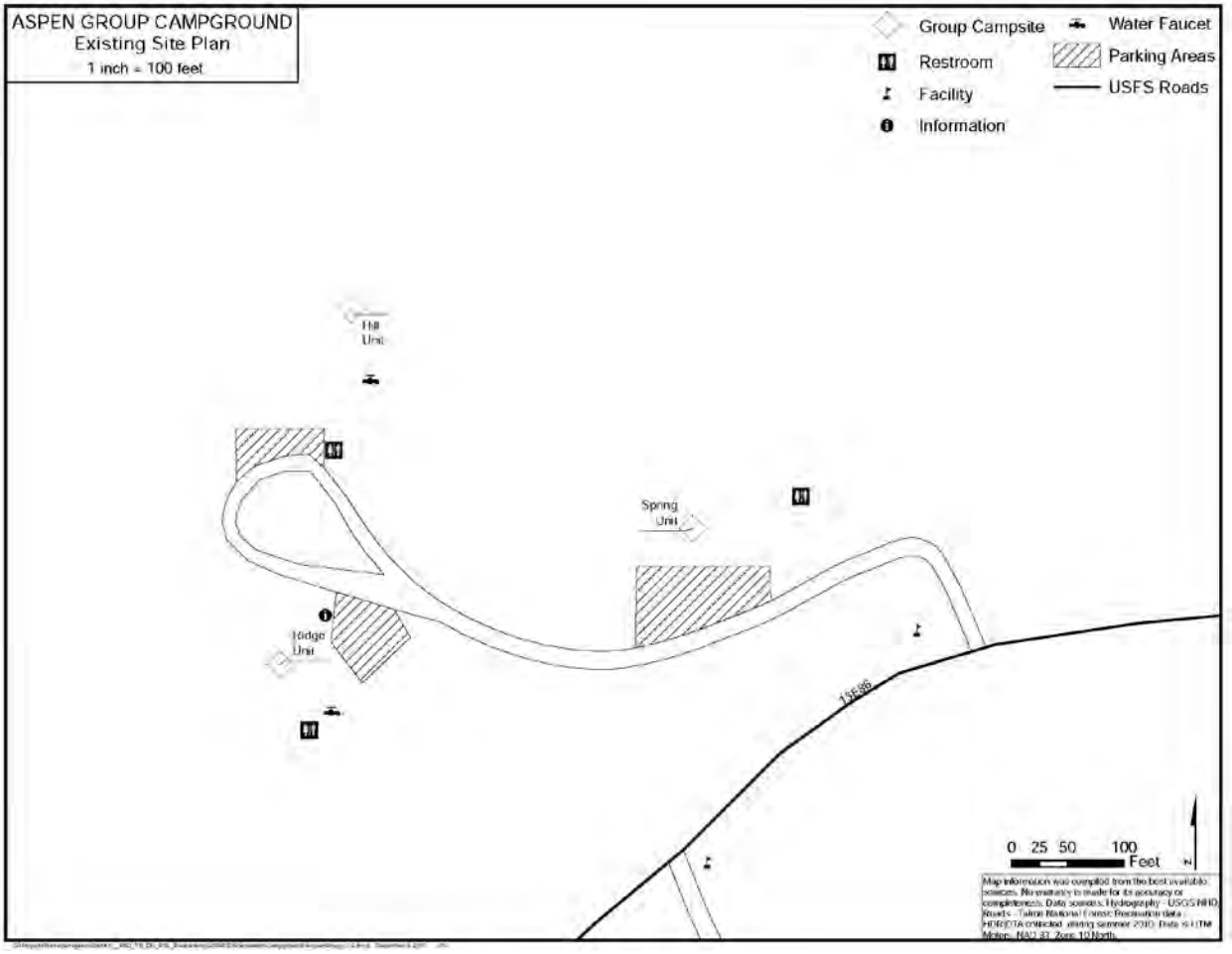
Existing Recreation Facility Site Plans

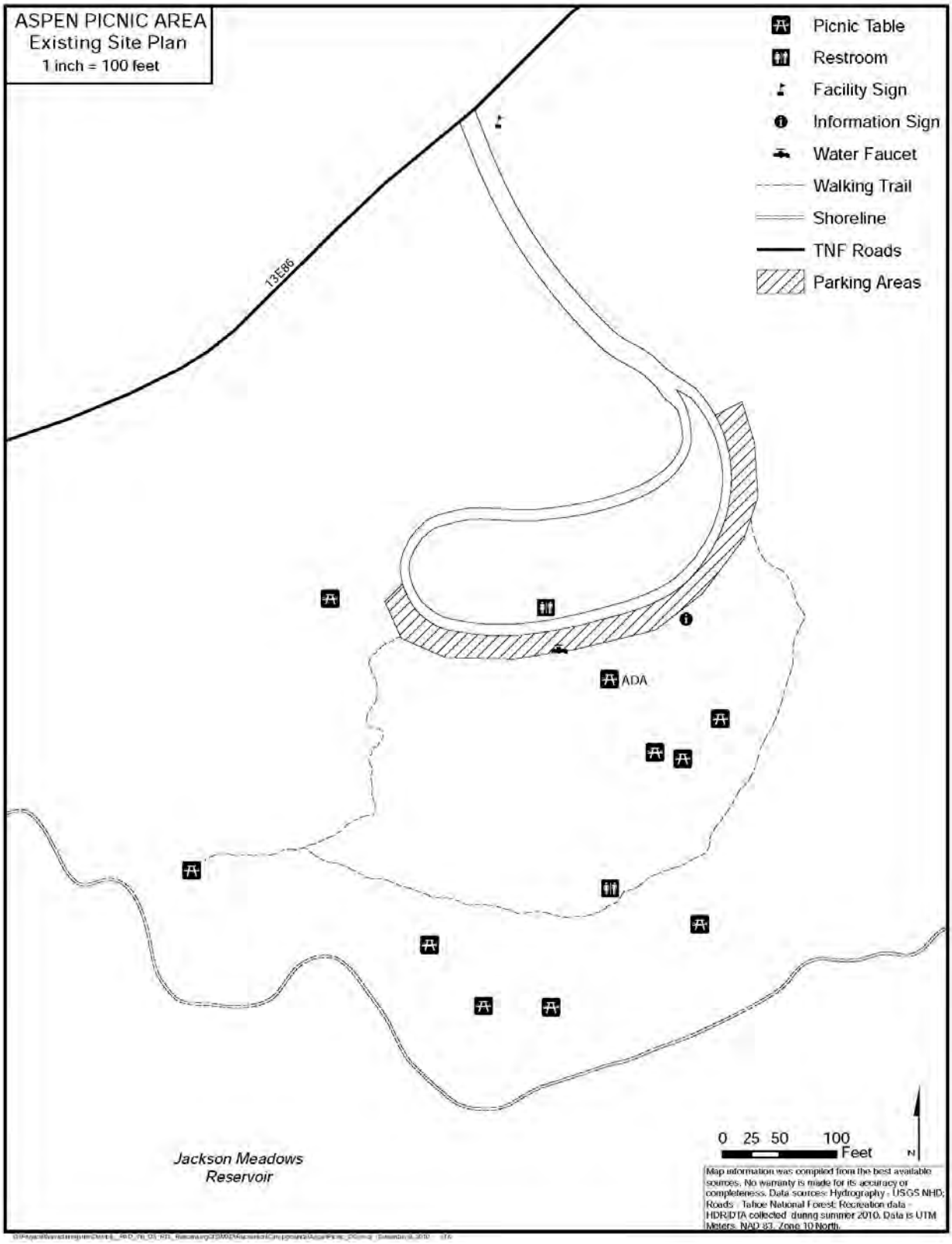
List of Existing Recreation Facility Site Plans

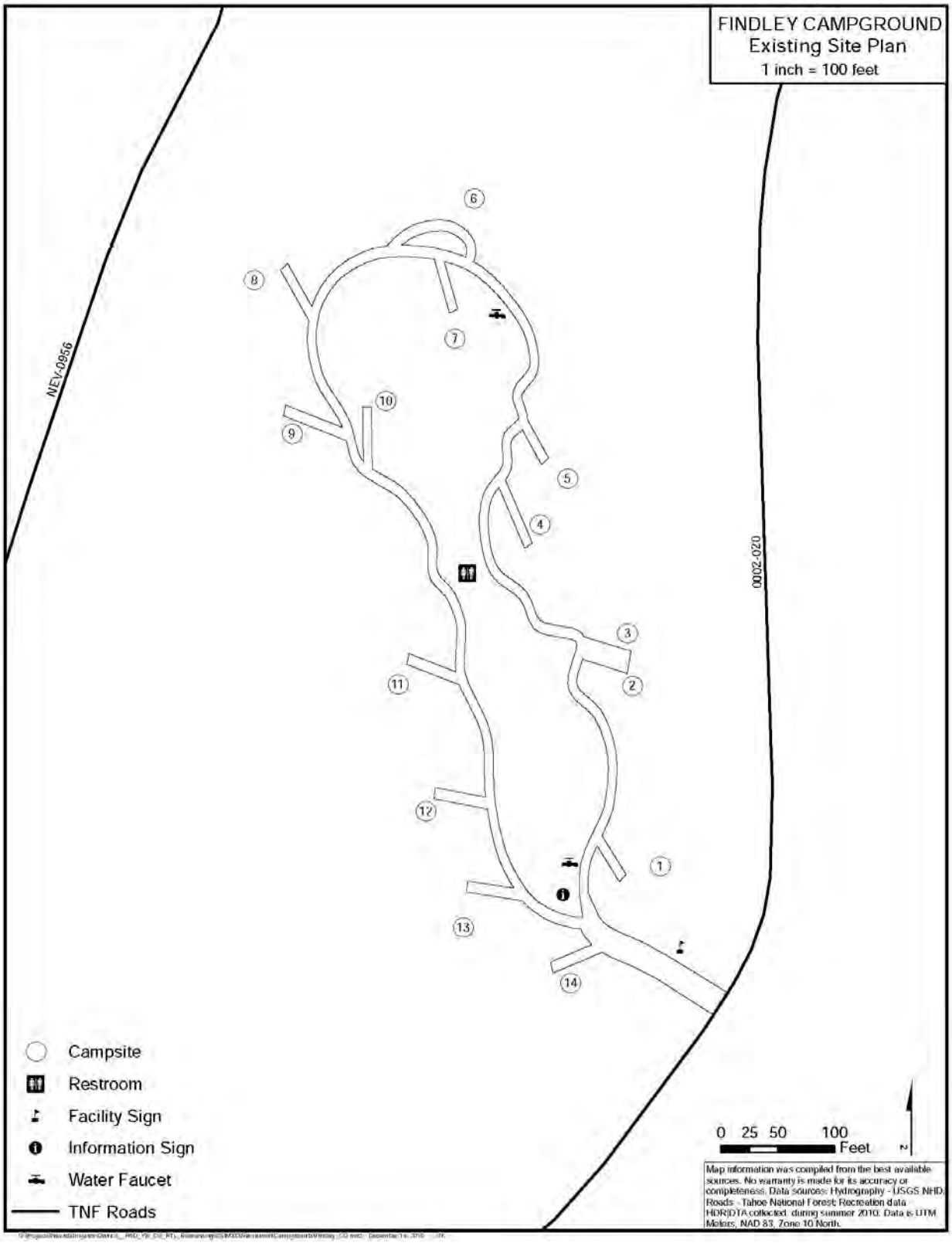
Page Left Blank

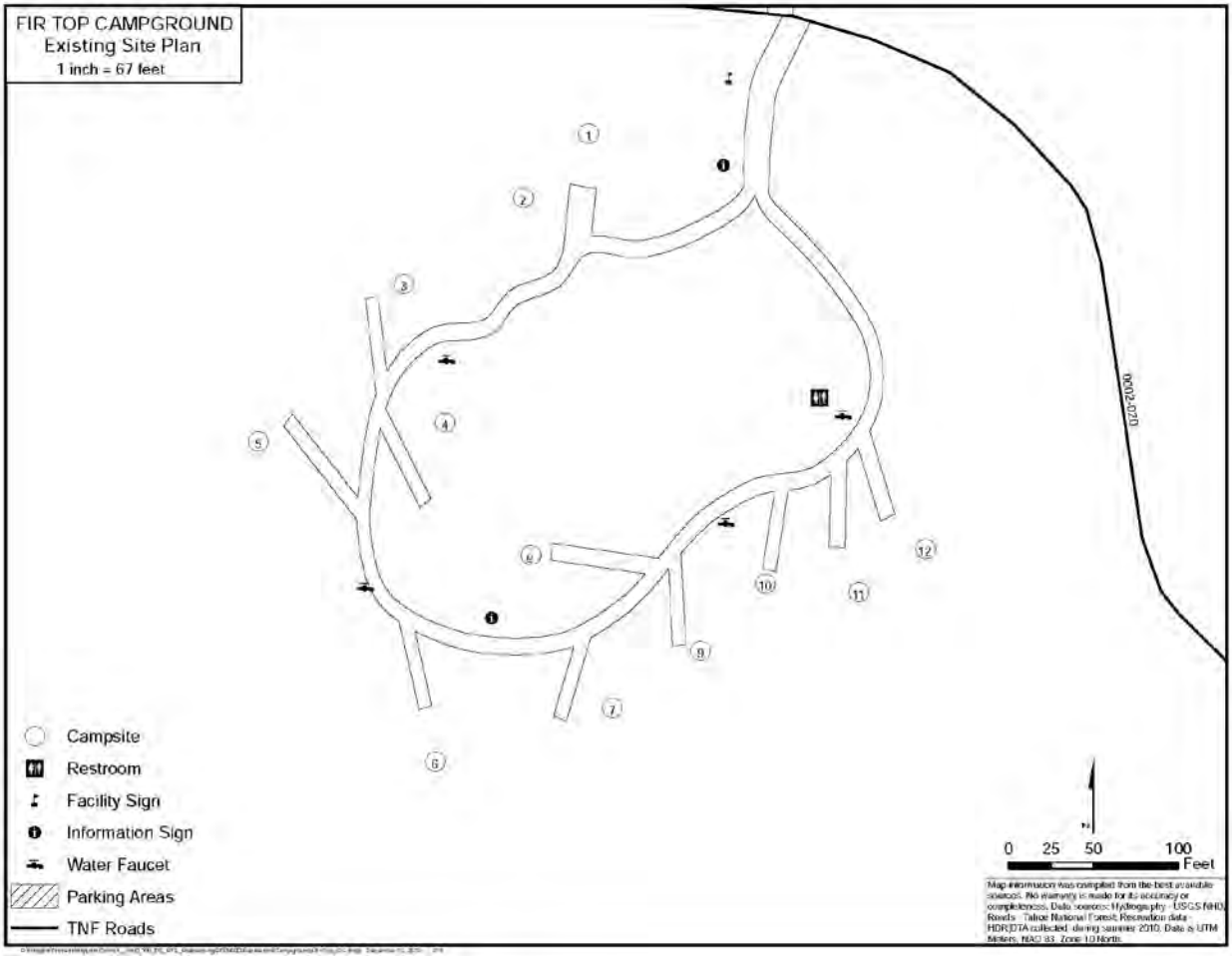


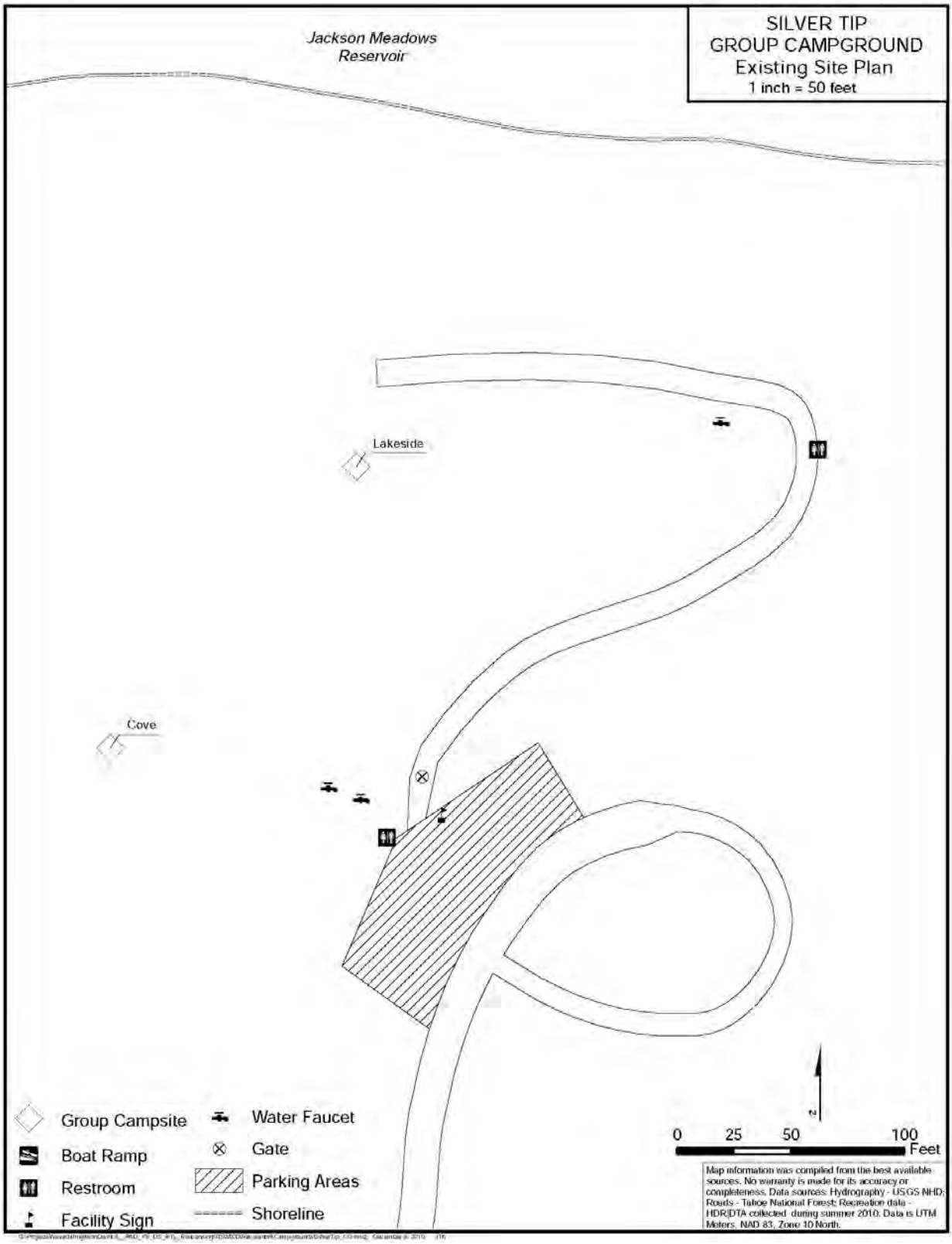

PASS CREEK COMPLEX
Existing Site Plan
1 inch = 150 feet
13E86
Jackson Meadows
Sanitation Dump
Station
Pass Creek
Campground
Host
Pass Creek
Overflow
Campground
Pass Creek
Boat Launch
Jackson Meadows
Reservoir
Primary
Auxiliary
0 2550 100
Feet
Map information was compiled from the best available sources. No warranty is made for its accuracy or completeness. Data sources: Hydrography - USGS NHD; Roads - Tahoe National Forest; Recreation data HDR|DTA collected during summer 2010. Data is UTM Meters, NAD 83, Zone 10 North.
N
Campsite
Facility Sign
Information Sign
Boat Ramp
Restroom
Sanitation Dump
Water Faucet
Parking Areas
TNF Roads
Shoreline

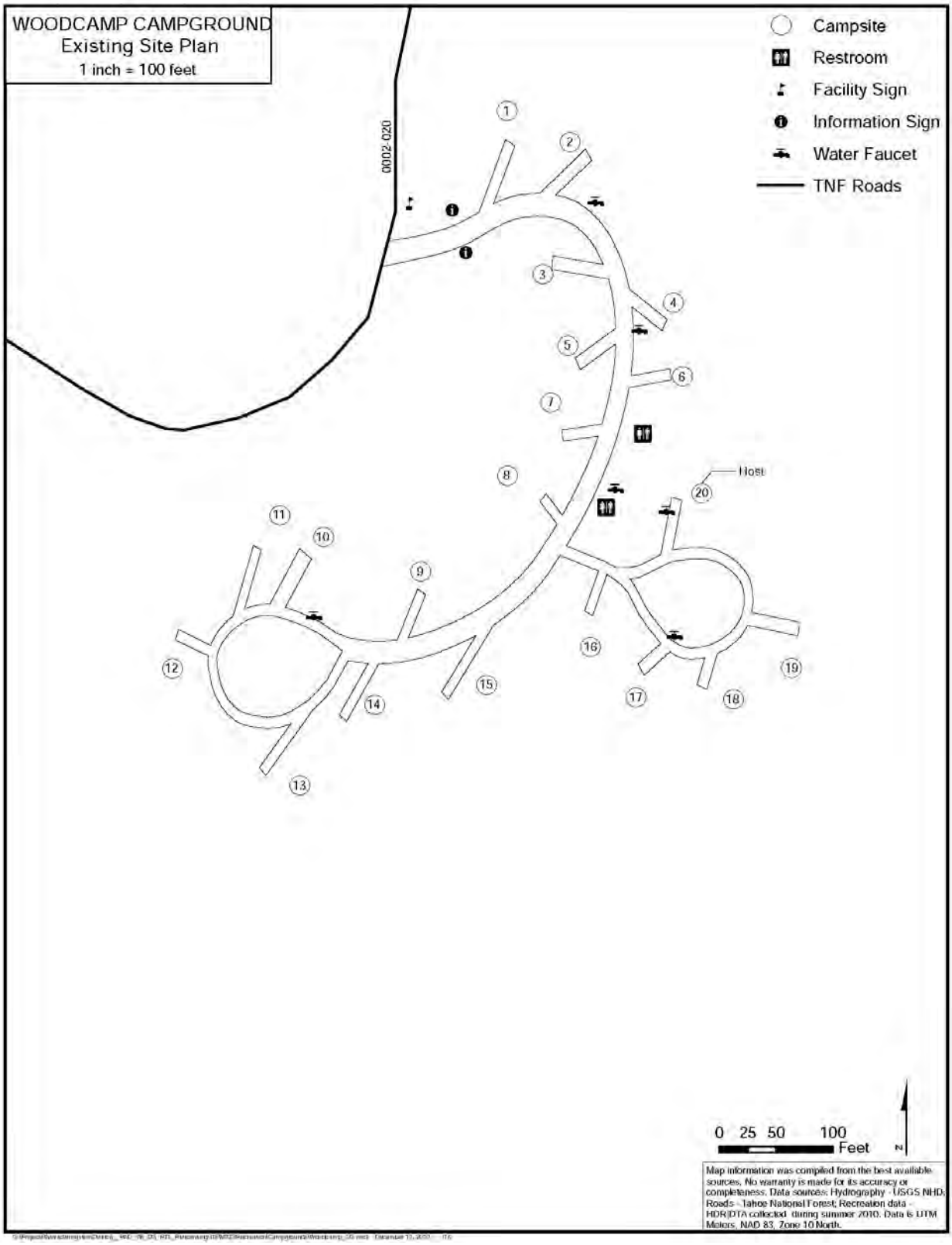


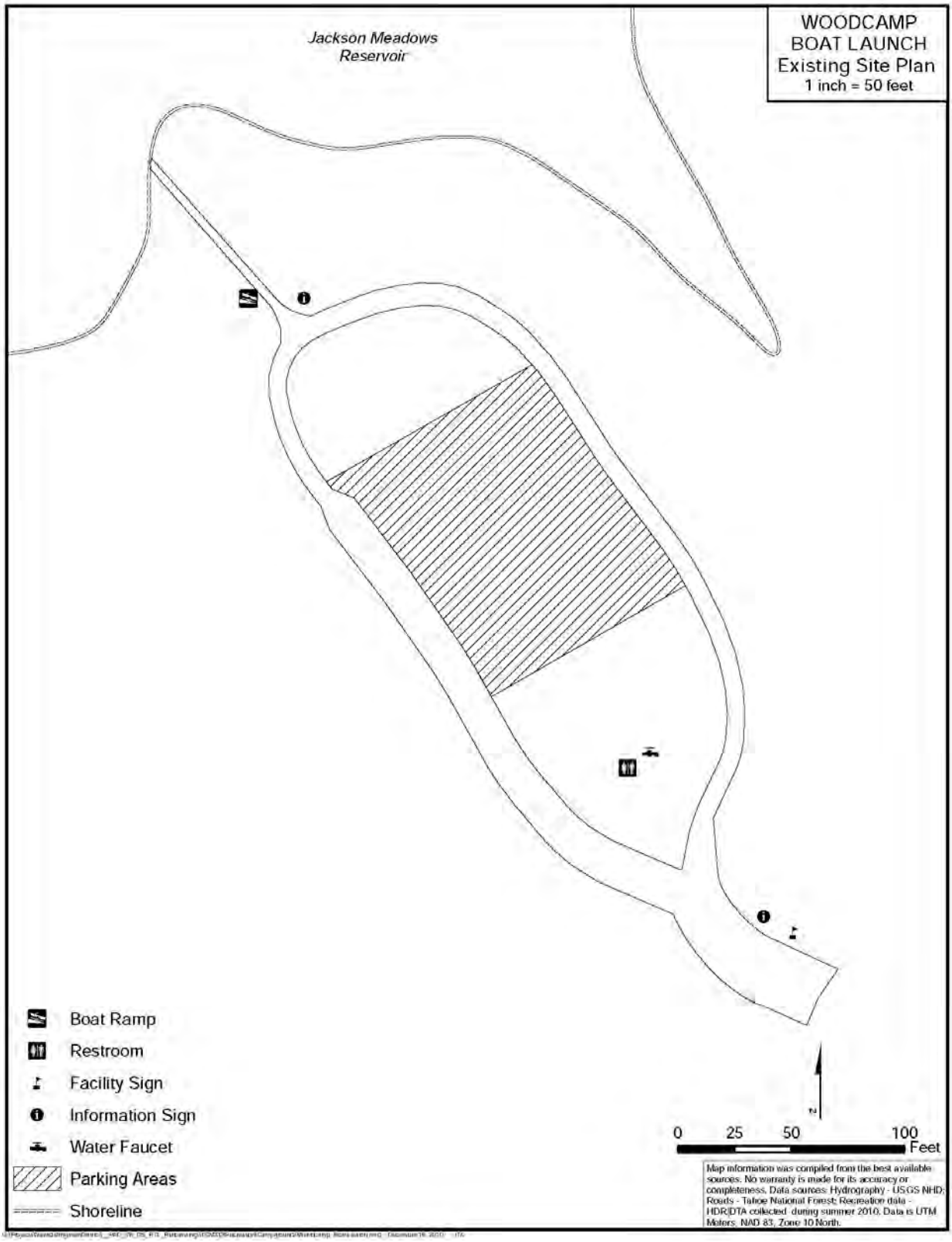


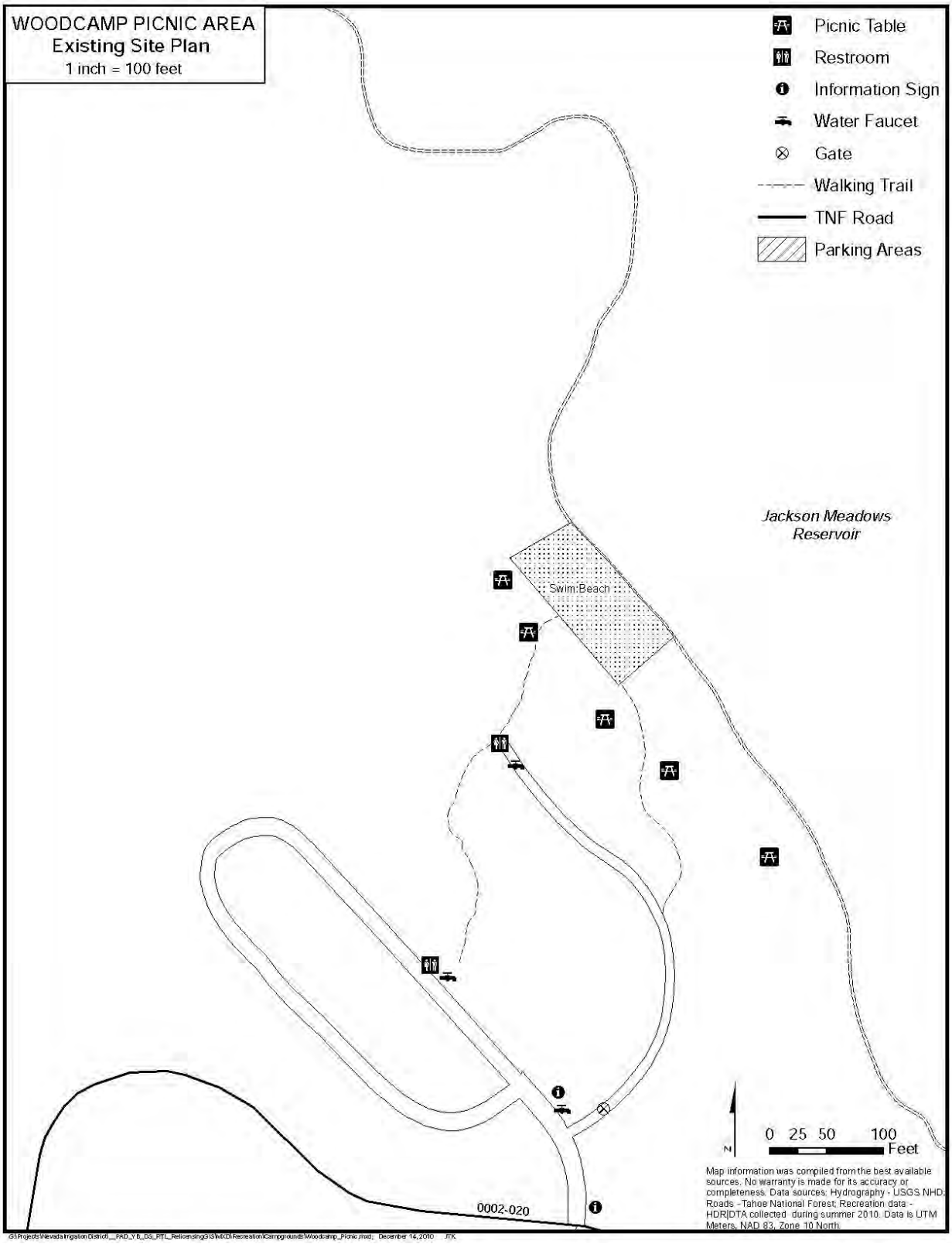


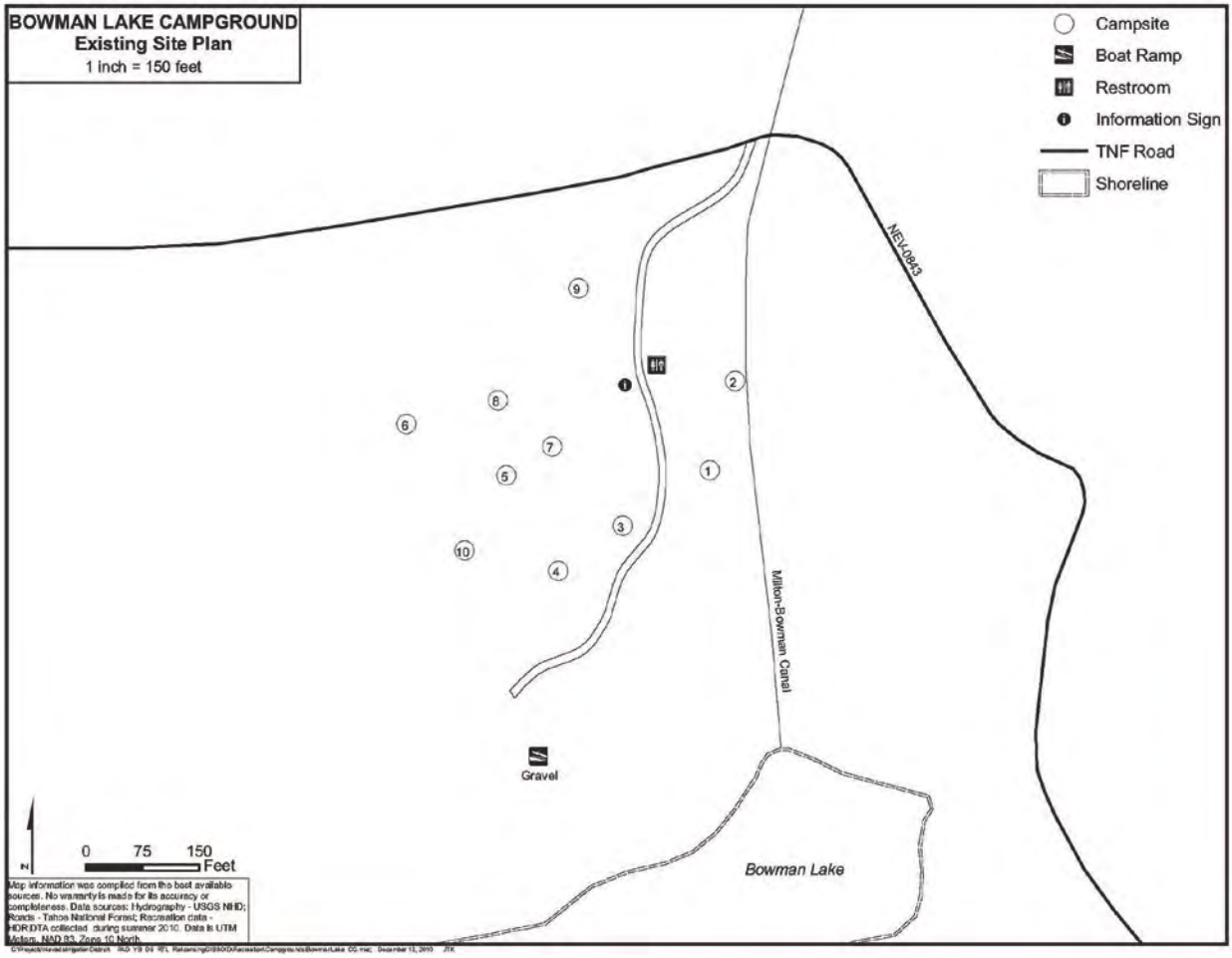


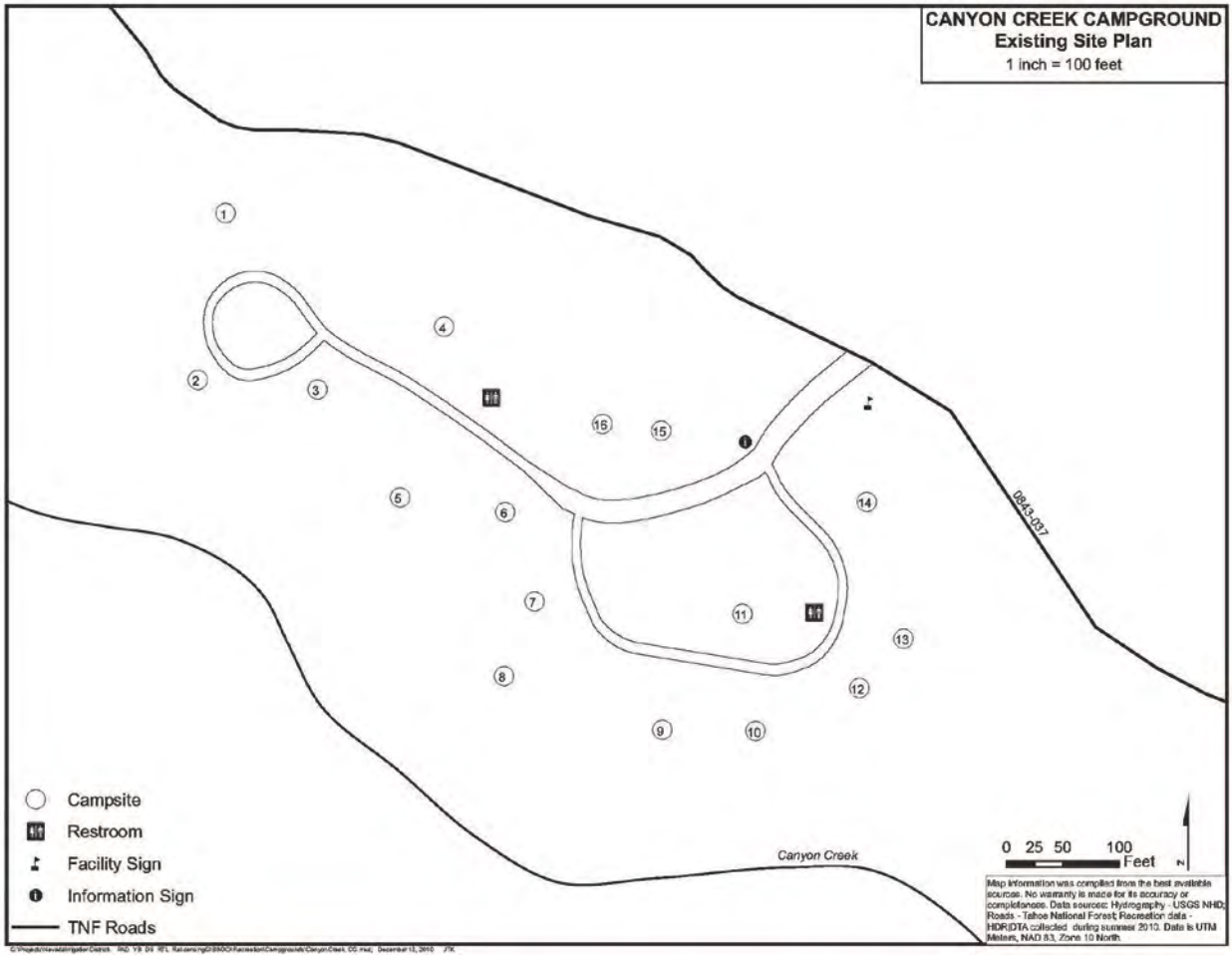


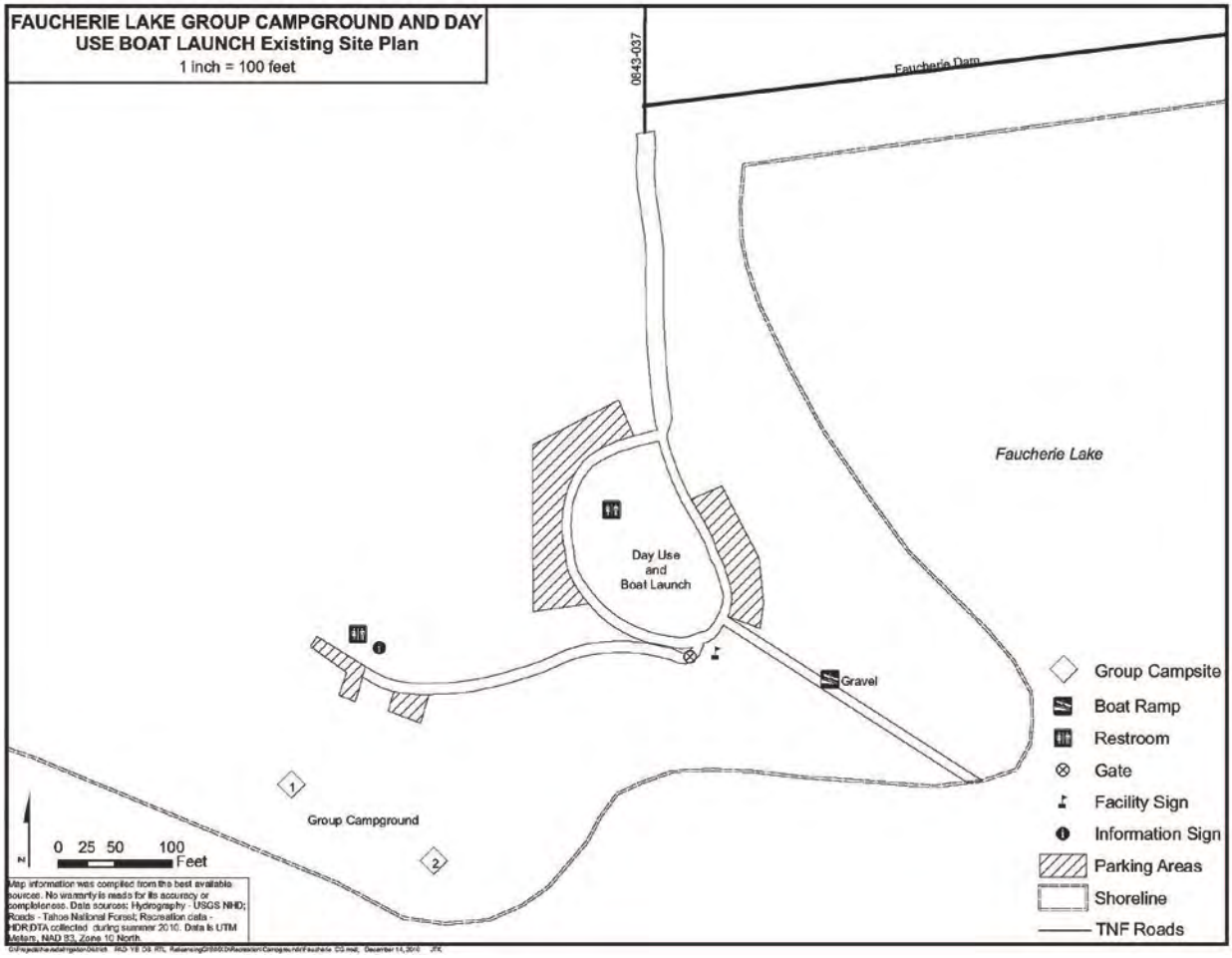


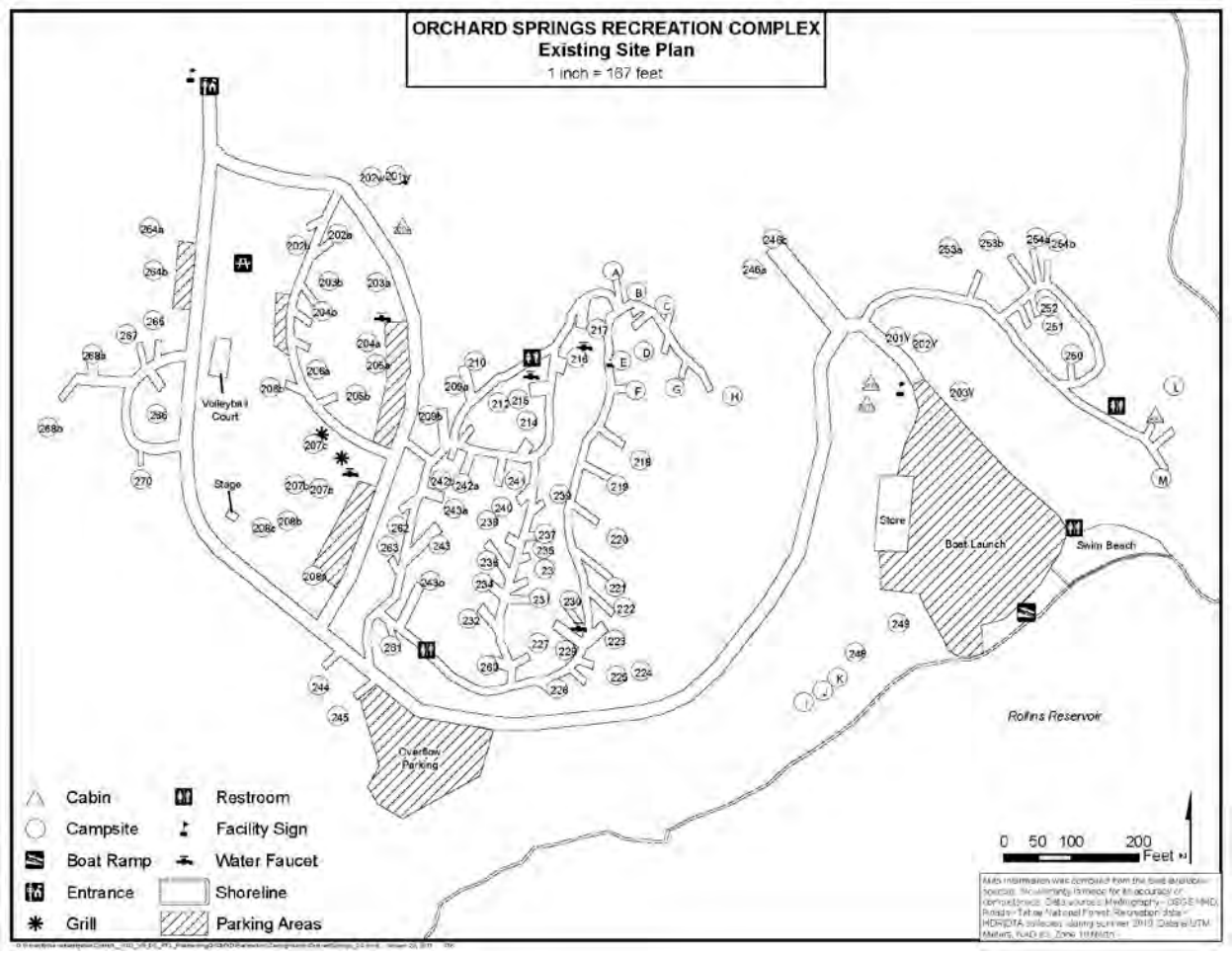


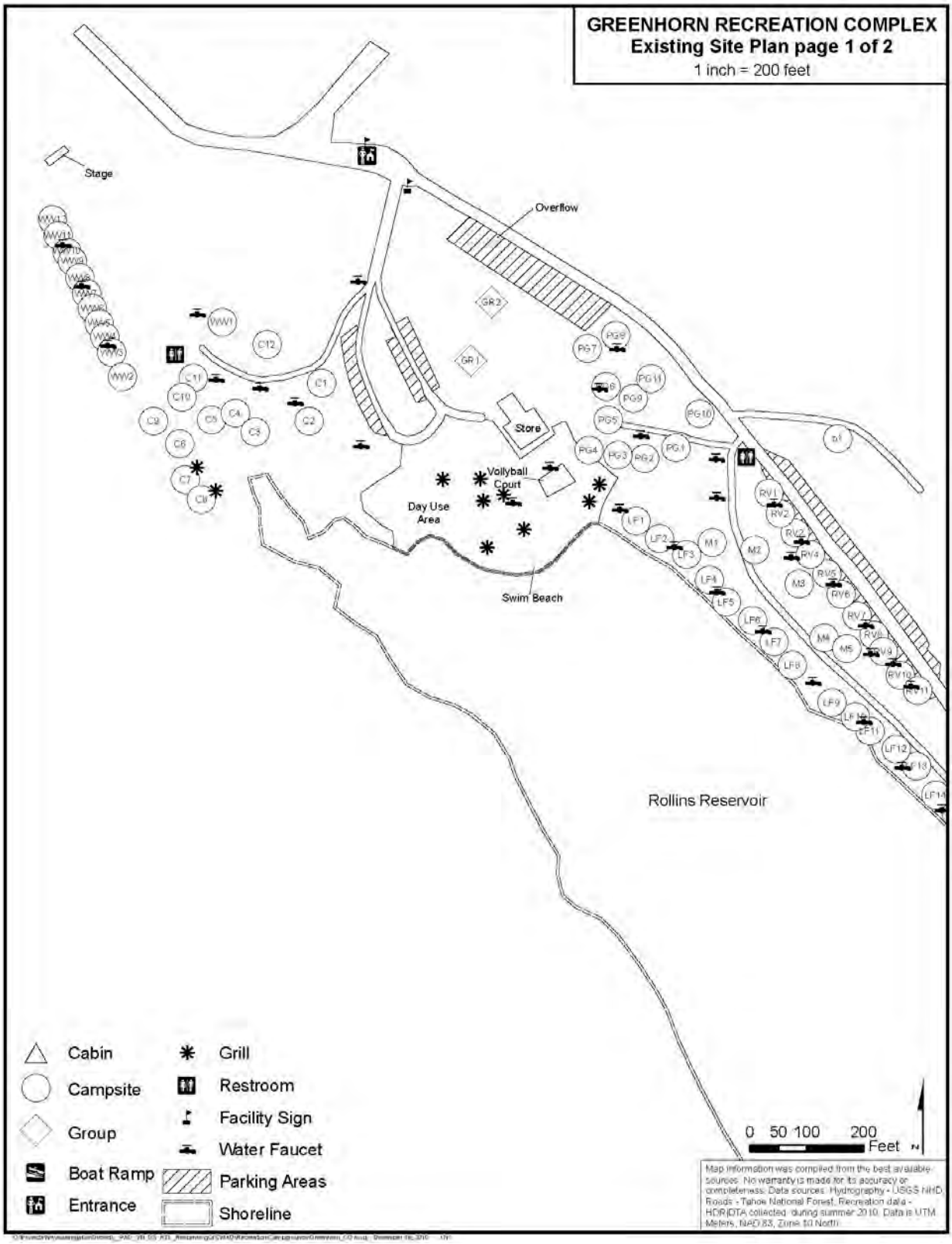


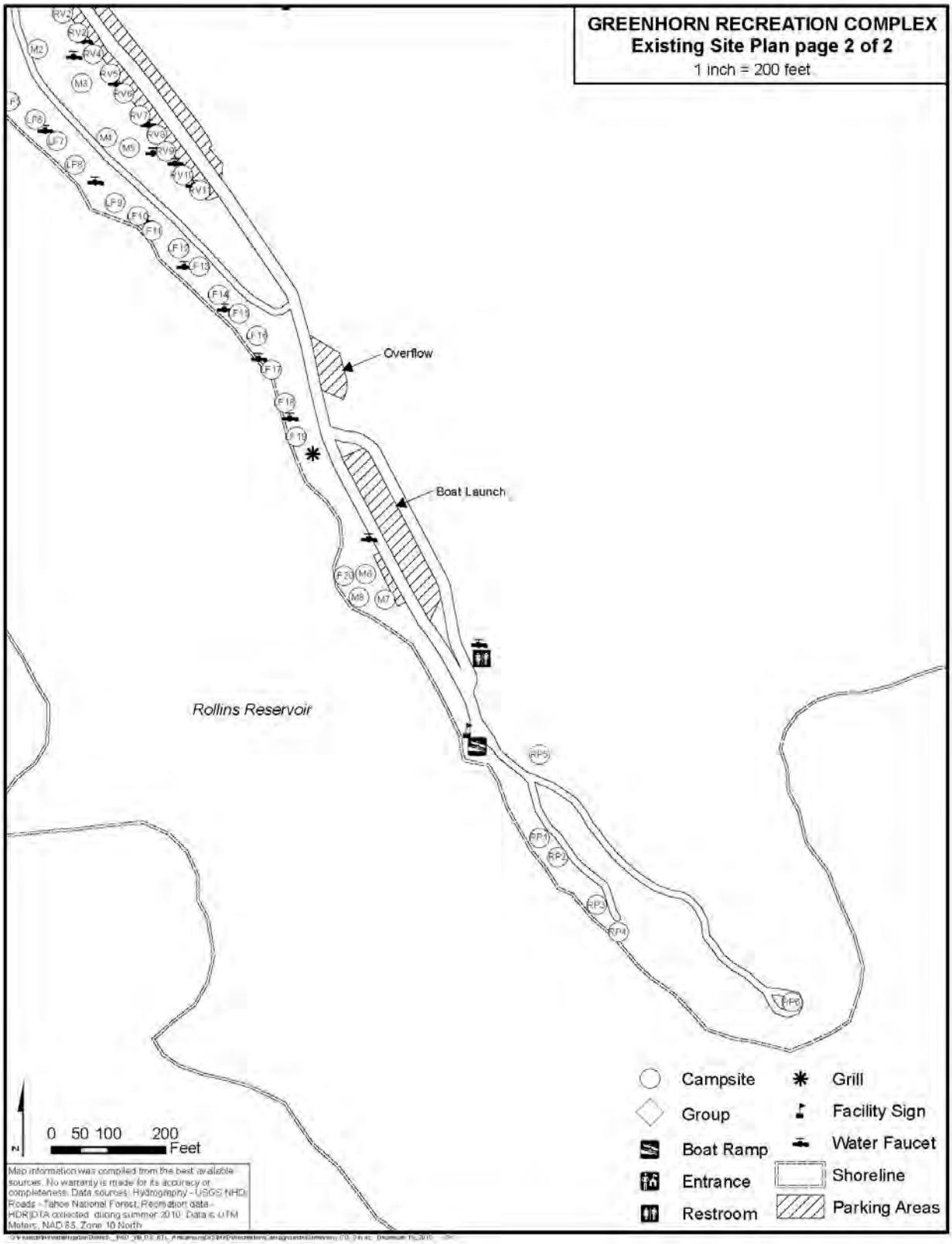


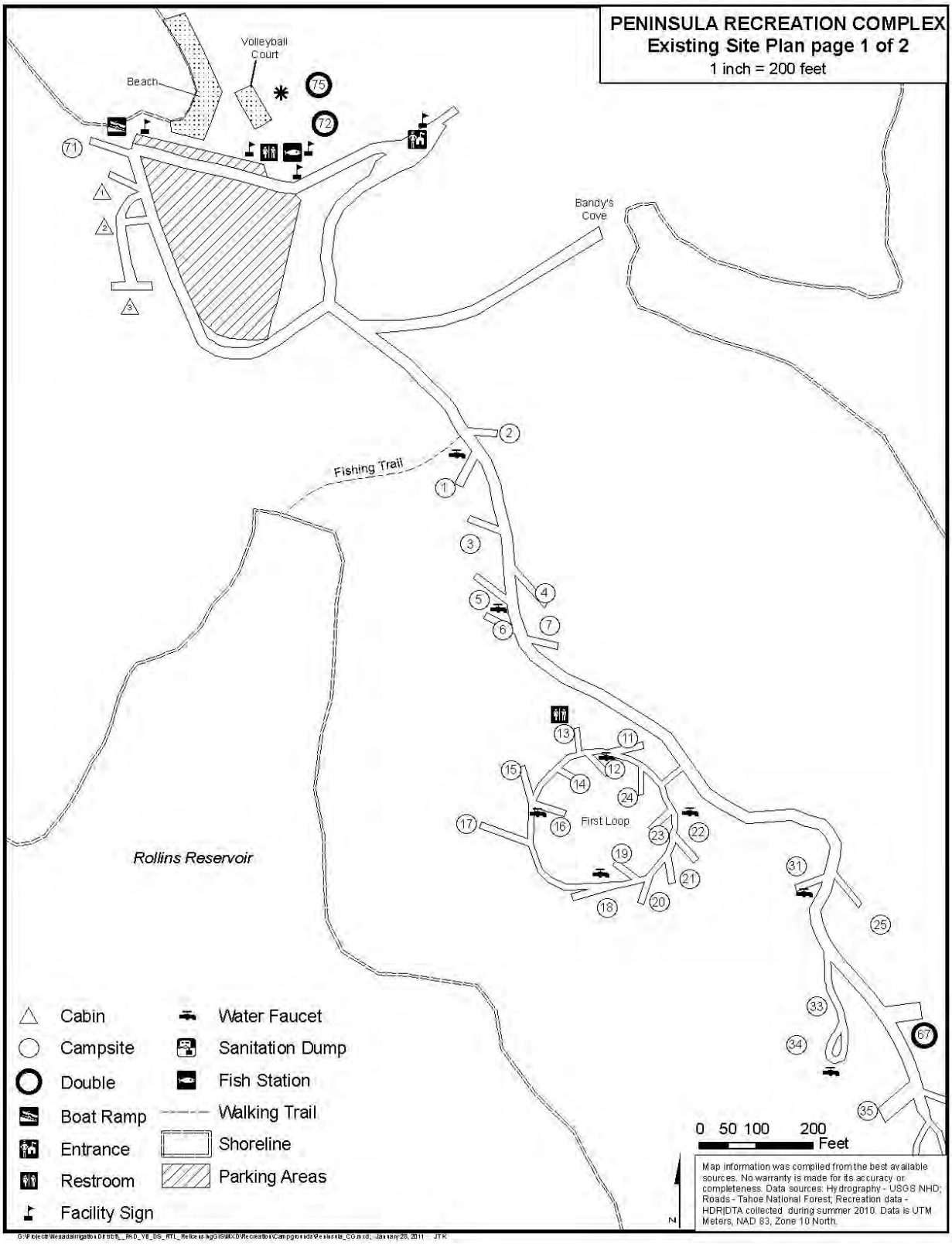


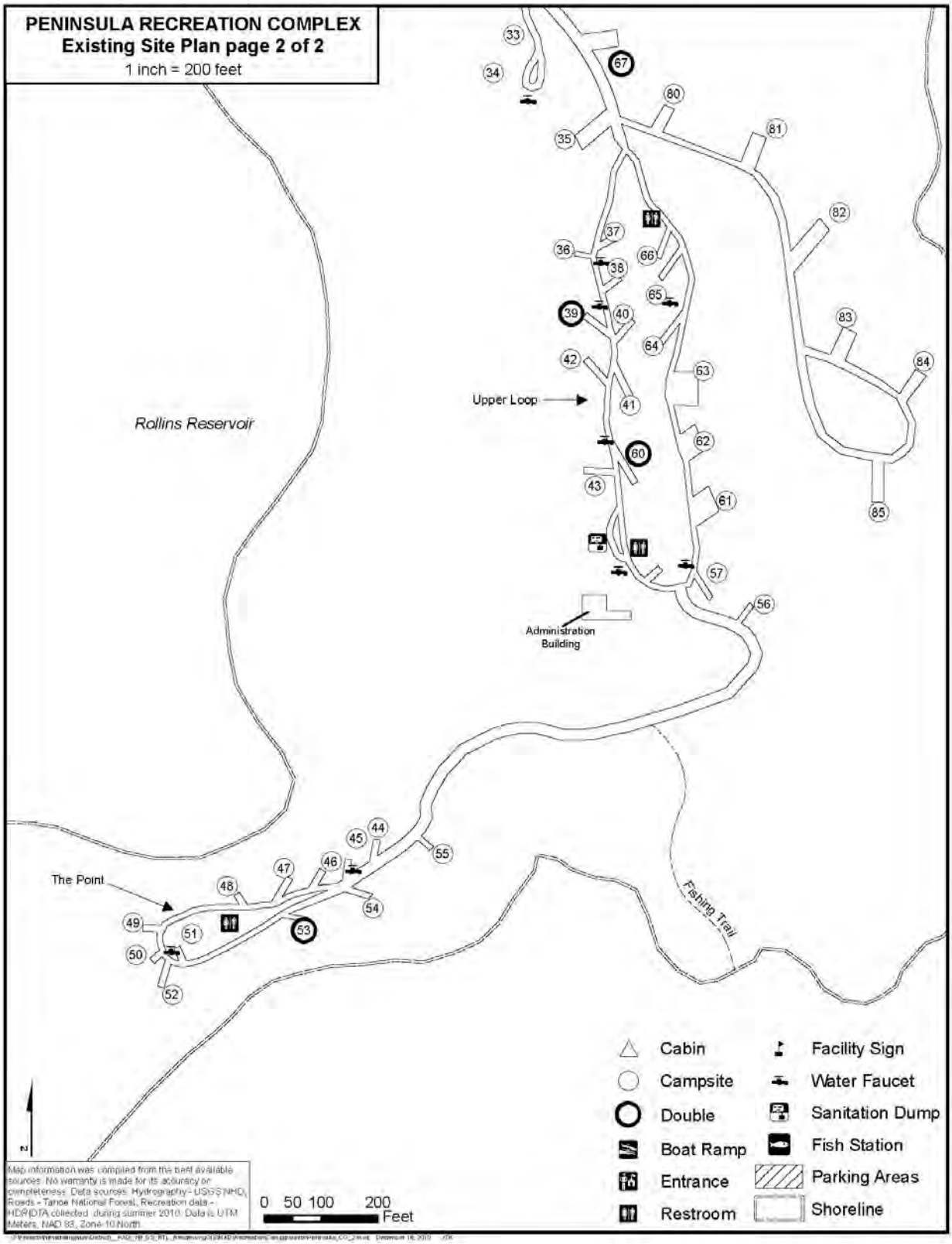


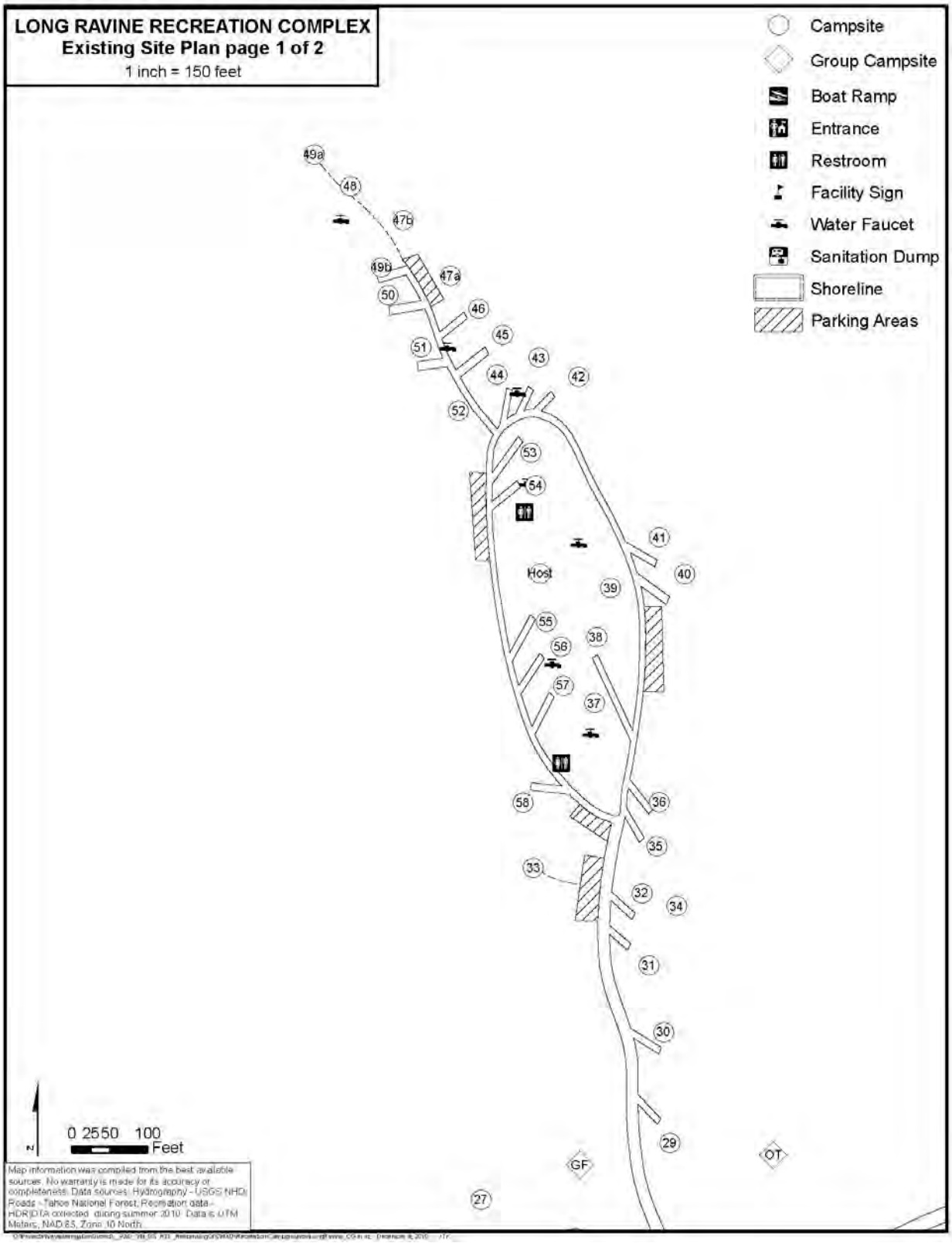


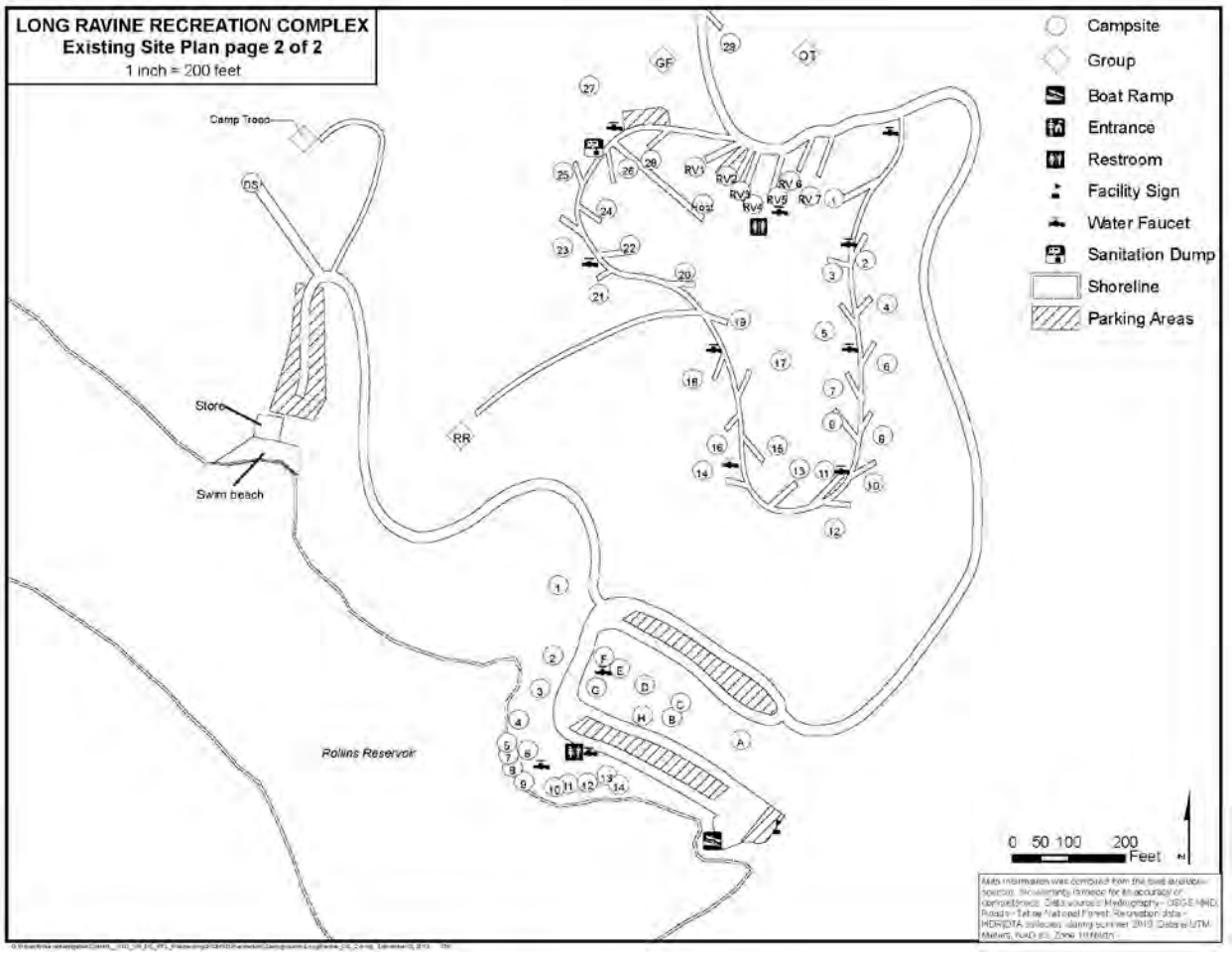












Yuba-Bear Hydroelectric Project
FERC Project No. 2266-096

Amended Recreation Facilities Plan

Attachment C

Nevada Irrigation District's August 24, 2010 Transmittal Letter for Agency 30-Day Review of the Yuba-Bear Hydroelectric Project Recreation Facilities Plan

NEVADA IRRIGATION DISTRICT
1036 W. Main Street, Grass Valley, CA 95945-5424 ~ www.nidwater.com
(530) 273-6185 ~ Fax: (530) 477-2646 ~ Toll Free: (800) 222-4102

August 24, 2010

Beth Paulson
USDA Forest Service
100 Forni Road
Placerville, CA 95667

Jim Eicher
USDOI, Bureau of Land Management
63 Natoma Road
Folsom, CA 95630

Jeff Parks
State Water Resources Control Board
1001 I Street
Sacramento, CA 95814

MaryLisa Lynch
California Department of Fish and Game
1701 Nimbus Road, Suite A
Rancho Cordova, CA 95670

Steven Bowes
USDOI National Park Service
1111 Jackson Street, Suite 700
Oakland, CA 94607

Tim Beals, Director
Sierra County Planning Department
P.O. Box 530
Downieville, CA 95936

Jory Stewart, Planning Director
Nevada County Planning Department
950 Maidu Avenue, Suite 170
Nevada City, CA 95959

Wendy Hartman, Planning Director
Yuba County Planning Department
915 8th Street, Suite 123
Marysville, CA 95901

Subject: **Yuba-Bear Hydroelectric Project**
FERC Project No. 2266-096
30-Day Review of Draft Recreation Facilities Plan

Dear Secretary Bose:

Nevada Irrigation District (NID or Licensee) intends to file with the Federal Energy Regulatory Commission (FERC) by December 1, 2010, a draft application for a new license for NID's existing Yuba-Bear Hydroelectric Project, FERC Project No. 2266. In a letter dated August 8, 2008, FERC directed NID to include a draft Recreation Plan in its draft license application. Specifically, FERC stated:

> *"Please develop a Recreation Plan to be included in your Preliminary License Proposal (PLP) or Draft License Application. At a minimum, you should consult with the appropriate federal and State of California resource agencies and local governments prior to developing this plan. The plan*

a. *List of all existing facilities;*
b. *All facility capital improvements (plans for proposed facilities and plans for capital improvements to existing facilities);*
c. *Facility operation and maintenance for all new and existing facilities*
d. *Implementation schedule for improvements, upgrades, construction, maintenance, etc.*
e. *Map that clearly defines where existing facilities and new facilities will be in relation to the project boundary; and*
f. *Any plans for monitoring recreation use throughout the life of the project license (indicators, standards, and monitor reporting).*

Please allow a minimum of 30 days for consulted entities to provide comments and make recommendations on the plan"

In conformance with FERC's direction, attached for your 30-day review is a draft Recreation Facilities Plan for the Yuba-Bear Hydroelectric Project.

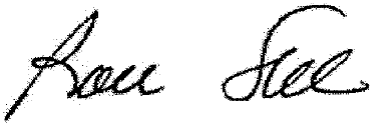
Of note, NID received preliminary comments and recommendations on an earlier version of the attached draft Recreation Facilities Plan from Relicensing Participants at a July 21, 2010, meeting. The attached Recreation Facilities Plan includes some changes by NID based on the meeting comments and recommendations.

Please provide any written comments or recommendations within 30 days of the date of this letter to the following address:

Nevada Irrigation District
1036 West Main Street
Grass Valley, CA 95945

If you have any questions regarding this letter, please contact me.

Sincerely,
Nevada Irrigation District



Ron Nelson
General Manager

Attachment: Draft Recreation Facilities Plan for the Yuba-Bear Hydroelectric Project

cc: Alan Mitchnick – FERC DC
Shana Murray – FERC DC
Relicensing Contact List via e-mail

Application for a New License
Major Project – Existing Dam

Amended Visual Resource Management Plan

Yuba-Bear Hydroelectric Project
FERC Project No. 2266-096

Prepared by:
Nevada Irrigation District
1036 West Main Street
Grass Valley, CA 95945
www.nidwater.com

June 2012

Table of Contents

List of Tables

List of Figures

List of Attachments

None

GLOSSARY - DEFINITIONS OF TERMS, ACRONYMS AND ABBREVIATIONS

For the purpose of this Plan, the following definitions apply:

ac	acre
ac-ft	acre-feet
BLM	United States Department of the Interior, Bureau of Land Management
BMP	Best Management Practices
CFR	Code of Federal Regulations
EVC	Existing Visual Condition
FERC	Federal Energy Regulatory Commission
Forest Service	United States Department of Agriculture, Forest Service
ft	feet
kV	kilovolt
LRMP	Land and Resource Management Plan for Tahoe National Forest
mi	mile
NFS	National Forest System
NID or Licensee	Nevada Irrigation District
NMWSE	normal maximum water surface elevation
O&M	Operations and Maintenance
Plan	Vegetation Management Plan
Project	Yuba-Bear Hydroelectric Project
ROW	right-of-way
SRMP	Sierra Resource Management Plan for BLM Folsom Office
sq mi	square mile
TNF	Tahoe National Forest
VQO	Visual Quality Objective (TNF)
VRM objective	Visual Resource Management Objective (BLM)

Page Left Blank

SECTION 1

INTRODUCTION

1.1 Background

In April 2011, Nevada Irrigation District (NID or Licensee), pursuant to Sections (§§) 5.17 and 5.18 of Title 18 of the Code of Federal Regulations (CFR), plans to file an application for a new license with the Federal Energy Regulatory Commission (FERC) for NID's Yuba-Bear Hydroelectric Project (Project), FERC Project No. 2266. The initial license for the Project, issued by the Federal Power Commission, FERC's predecessor, to NID on June 24, 1963, was effective on May 1, 1963, for a term ending April 30, 2013.

The Project is a water supply/power project located in the Middle Yuba River, Canyon Creek, Fall Creek, Rucker Creek, and Bear River basins in Nevada, Placer, and Sierra counties, California. The Project consists of four developments – Bowman, Dutch Flat, Chicago Park and Rollins – that collectively include nine on-stream reservoirs; three off-stream impoundments; two diversion dams; four powerhouses; one overhead 60 kilovolt (kV) transmission line; and various water conduits and appurtenant facilities and structures.

Table 1.1-1 provides information regarding the physical characteristics of each Project reservoir. Figure 1.1-1 shows a flow schematic of the Project.

Table 1.1-1. Key information regarding the physical characteristics of Yuba-Bear Hydroelectric Project reservoirs and impoundments.

Project Reservoir	NMWSE[1] (ft)	Gross Storage[2] (ac-ft)	Usable Storage[2] (ac-ft)	Surface Area[2] (ac)	Maximum Depth[2] (ft)	Shoreline Length[2] (mi)	Drainage Area (sq mi)
MIDDLE YUBA RIVER SUB-BASIN							
Jackson Meadows Reservoir	6,036.0	67,435	67,260	1,008	144	9.9	37.3
Milton Diversion Dam Impoundment	5,690.0	275	295	100	37	1.3	39.8
CANYON CREEK SUB-BASIN							
Jackson Lake	6,592.7	1,330	970	52	54	1.1	0.70
French Lake	6,660.0	13,940	13,940	356	65	5.3	4.82
Faucherie Lake	6,123.0	3,980	3,740	150	42	2.4	9.29
Sawmill Lake	5,860.0	3,030	3,030.	113	55	2.6	17.0
Bowman Lake[3]	5,562.0	68,363	67,860	827	162	7.6	28.5
BEAR RIVER SUB-BASIN							
Dutch Flat No. 2 Forebay	3,330.0	184	120	8	61	0.5	0.1
Dutch Flat Afterbay	2,740.0	1,397	676	38	170	1.9	21.2
Chicago Park Forebay	2,716.0	103	103	7	31	0.7	None
Rollins Reservoir	2,171.0	58,682	54,498	788	209	19.0	104.00
Total	--	**218,739**	**212,492**	--	--	--	--

[1] Normal maximum water surface elevation
[2] At NMWSE
[3] Including drainage into the Bowman-Spaulding Diversion Conduit from feeder tributaries

Page Left Blank

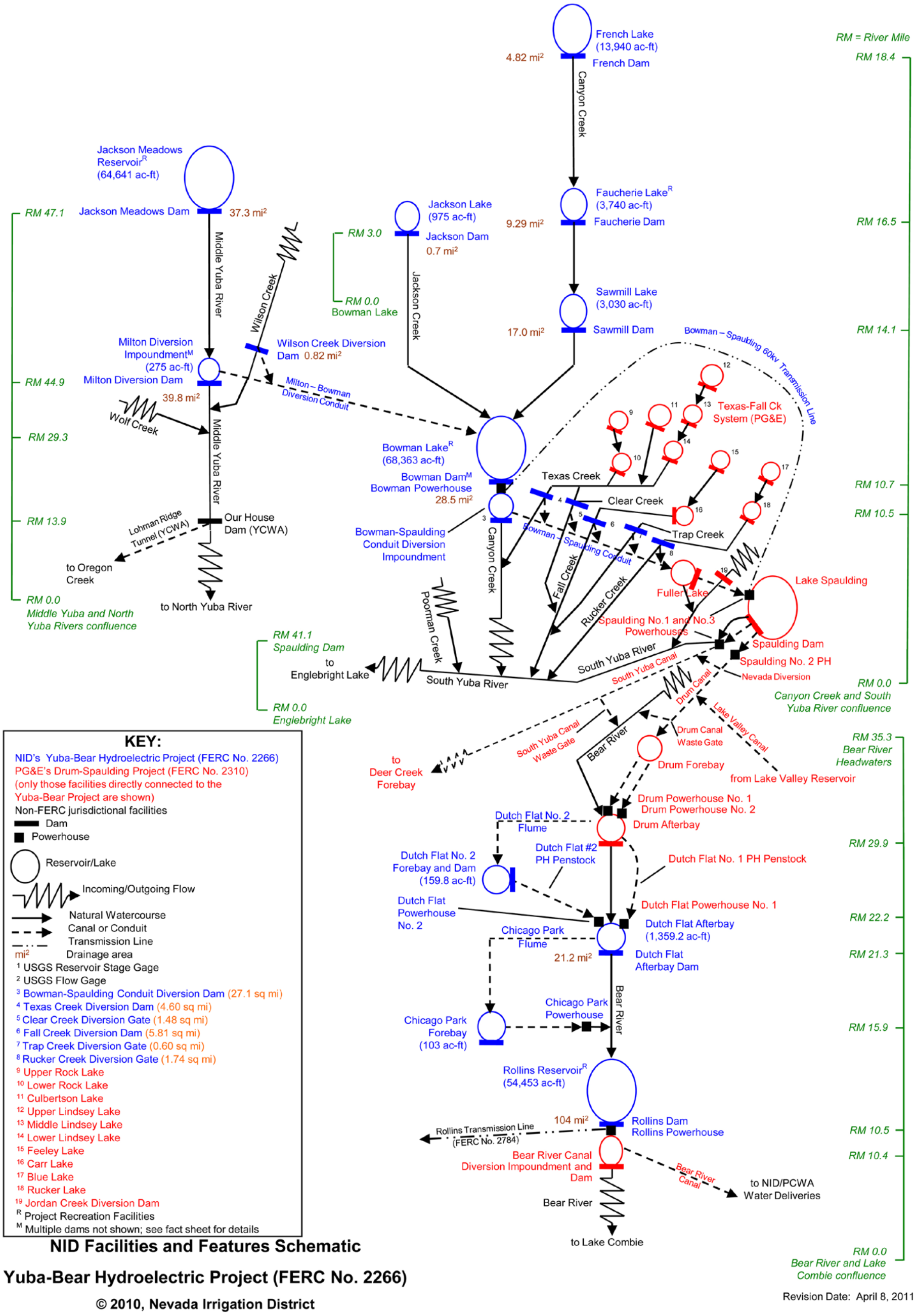


Figure 1.1-1. Yuba-Bear Hydroelectric Project flow schematic.

Page Left Blank

Some of the area within the FERC Project Boundary, as shown in Exhibit G of Licensee's application for a new license, occupies federally owned National Forest System (NFS) land managed by the United States Department of Agriculture, Forest Service (Forest Service) as part of the Tahoe National Forest (TNF) and in conformance with TNF's Land and Resources Management Plan or LRMP (Forest Service 1990), and some is federally owned land administered by the United States Department of the Interior, Bureau of Land Management (BLM) in conformance with the Sierra Resource Management Plan, or SRMP (BLM 2008). Table 1.1-2 shows the amount of federal land by Project development, and Table 1.1-3 lists features partially or fully located on federal land by development.

Table 1.1-2. Summary of land ownership within the proposed Yuba-Bear Hydroelectric Project FERC Project Boundary by Project Development.[1]

Development	Forest Service (ac)	BLM (ac)	NID (ac)	Other Private (ac)	Total (ac)	Percent
PROPOSED FERC PROJECT BOUNDARY						
Bowman	1,202.2	--	2,313.9	112.8	3,628.9	60%
Dutch Flat	205.1	13.9	53.1	89.4	383.7	6%
Chicago Park	--	77.0	48.1	70.3	195.4	3%
Rollins	--	140.2	1,690.6	7.3	1,838.1	30%
Bowman-Spaulding Transmission Line	28.2	--	1.9	28.2	58.3	1%
Total	**1,435.5**	**231.1**	**4,107.7**	**308.0**	**6,082.3**	**100%**
Percent	**24%**	**4%**	**67%**	**5%**	**100%**	**--**

[1] The Bowman-Spaulding Transmission Line, part of the Bowman Development, is shown separately because it is a linear facility.

Table 1.1-3. Features associated with each development for the Yuba-Bear Hydroelectric Project located in part, or fully, on federally owned lands.

Development	Associated Features
Bowman	Jackson Meadows Dam, Jackson Meadows Reservoir, Milton Diversion Dams, Milton Diversion Impoundment, Milton-Bowman Diversion Conduit, Jackson Lake, French Dam, French Lake, Faucherie Lake, Sawmill Lake, Bowman Dams, Bowman Lake, Bowman Penstock, Bowman Powerhouse, Bowman Switchyard, Bowman Transmission Line, Jackson Meadows Reservoir Recreation Area, Bowman Campground
Dutch Flat	Bowman-Spaulding Conduit, Fall Creek Diversion Dam, Fall Creek Diversion Flume, Dutch Flat No. 2 Conduit
Chicago Park	Dutch Flat Afterbay Dam, Dutch Flat Afterbay, Chicago Park Conduit, Chicago Park Forebay Dam, Chicago Park Forebay, Chicago Park Powerhouse Penstock, Chicago Park Powerhouse, Chicago Park Switchyard
Rollins	Rollins Reservoir

1.2 Purpose of the Visual Resource Management Plan

The Visual Resource Management Plan (Plan) provides guidance for the management of visual resources within the FERC Project Boundary on NFS land managed by the Forest Service, federal land administered by BLM, and NID-owned land visible from federal land.

Any measures undertaken with respect to visual resource management will be coordinated by the Licensee with other resource efforts and will, in particular, take into account the need to prevent disturbance to any known cultural resources, and to take appropriate actions in the event of unanticipated discovery of cultural materials.

1.3 Objectives of the Visual Resource Management Plan

The objectives of the Plan are as follows:

- Improve the visual quality of the Project.
- Bring Project facilities into compliance with the visual quality objectives (VQOs) in TNF's LRMP and the Visual Resource Management (VRM) objectives in BLM's SRMP to the extent possible.
- Identify how to address Project facility building materials, colors, landscaping, screening along with clearings and spoil piles at the Project so that they meet TNF's VQO directives and BLM's VRM objectives.
- Use mitigation measures such as, but not limited to, the following to meet the TNF's VQO objectives and BLM's VRM objectives to help the Project better integrate into its visual environment on federal land by:
  - Using surface treatments with colors and materials that are in harmony with the surrounding landscape.
  - Using native plant species where appropriate to screen facilities from view. Reshape and re-vegetate disturbed areas so that they blend in with their surroundings.
  - Removing Project-induced debris piles that detract from visual quality.

1.4 Contents of the Visual Resource Management Plan

This Plan includes the following:

- Section 1: Introduction. This section includes introductory information, including the purpose and goal of the Plan.
- Section 2: Identifying Mitigation Measures. This section includes information on how visual resources were evaluated and mitigation measures identified.
- Section 3: Proposed Mitigation Measures. This section includes a description of proposed mitigation measures.
- Section 4: Schedule for Implementation. This section includes information on the schedule for implementing mitigation measures.
- Section 5: Consultation During Implementation. This section details consultation between Licensee and TNF and BLM before a mitigation task is implemented on the ground.
- Section 6: References Cited. This section lists the references cited in the Plan.

SECTION 2

IDENTIFYING MITIGATION MEASURES

This section addresses how mitigation measures were identified for specific facilities. The three steps in the process were as follows:

- Use the visual resource evaluations to identify facilities needing mitigation
- Identify mitigation measures for facilities
- Review mitigation measures for feasibility

2.1 Visual Resource Evaluations

In summer 2009, Licensee conducted a visual resource evaluation of all facilities and features associated with the Project. The results of this evaluation are documented in Licensee's Technical Memorandum 10.1, Visual Quality, dated March 2010, which is included in Licensee's Application for New License (Appendix E13 to Exhibit E). The main point of the visual resource evaluation was to describe the existing visual condition (EVC) of all facilities and compare that to the visual quality objectives set in TNF's LRMP. Where the EVC did not meet the VQO, this was identified as a facility where mitigation may be considered. On federal land administered by BLM, a similar evaluation was conducted but with different terminology. For BLM, the visual contrast of facilities against the surrounding landscape was identified and then compared to the VRM objectives set in the SRMP. Where the level of contrast did not match with the VRM objectives, the facility was identified as potentially needing mitigation. The evaluation of facilities and whether they met land management objectives was documented in Tables 3.1-1 through 3.1-5, Existing Visual Condition Assessment by NID Facility, in Technical Memorandum 10.1.

2.2 Mitigation Measures Identified

During the summer 2009 field assessment of existing visual condition, Licensee listed possible mitigation measures that could be applied to Project facilities. The most common mitigation measure was to paint a light colored facility a dark green or brown to better blend in with the landscape. Other options such as planting vegetative screens, removing a structure, building a solid fence for visual screening, or changing the surface texture were considered where appropriate. Possible mitigation measures were compiled during the summer field season and documented by site.

It was noted that the visual quality of some facilities was as an issue, but no viable action was possible. This was particularly true for the dam structures. Dam structures often have high visual contrast and do not meet visual objectives, but the engineering and safety requirements from FERC and the California Division of Safety of Dams strictly limit what can be done to a dam. In other cases, mitigation measures were considered for facilities that did not meet visual objectives but the action was rejected because the mitigation would not have reduced visual

contrast. For example, in some cases painting a structure will not reduce contrast because the structure was too smooth and geometric in shape to blend with the surrounding landscape. In other cases, the color may work for summer conditions but contrast with the white snow in winter.

2.3 Mitigation Measure Feasibility

The list of possible visual mitigation measures were reviewed by Licensee for operational feasibility. Some were rejected. For example, a light-colored reservoir surface level gage building could be repainted to a dark color to better conform to the landscape. However the building housed temperature sensitive equipment and could not function with high heat that would be caused by painting the facility a dark color, which is the reason the facility is painted a light color now.

SECTION 3

MITIGATION MEASURES

Mitigation measures are listed by facility and organized from upper watersheds to lower watersheds. For each facility, a short description of the visual contrast is provided along with the EVC rating, followed by the mitigation measure. The appropriate Key Observation Point (KOP) is also listed so that a picture of the facility can be found in Technical Memorandum 10.1, Attachment for Photos. Section 4 then lists the mitigation measure and displays in table format when implementation of the mitigation measure will be completed.

Facilities on NFS land and mitigation measures are:

- **Jackson Meadow Dam traffic guard rail (JK 6) and (JK 11).** View west from Fiberboard Road (FS 07), also Henness Pass Road. The white color of the guard rail is in strong contrast to the darker grays of the dam and the greens of surrounding vegetation. EVC IV.
  - **Mitigation:** Paint the outside of the white concrete guard rail a dark grey. Paint the outside of metal guard rail on the reservoir side a dark grey. Consult with Forest Service regarding color.
- **Jackson Meadow Dam Auxiliary Generator Building (JK-7).** View west from road and road on Dam. The white color of the spillgate auxiliary generator building on the left abutment of the dam is in strong contrast with the darker grays and browns of native rock and soils nearby. EVC IV.
  - **Mitigation:** Paint the white building a dark gray or dull green. Consult with Forest Service regarding color.
- **Jackson Meadow spoil piles (JK-10).** View from Graniteville Road by spoil pile just south of the Jackson Meadow Dam. The flat opening that can handle temporary spoil piles looks jumbled and messy when piles remain over time. Spoil piles do not blend into the surrounding landscape particularly in immediate foreground. EVC IV.
  - **Mitigation:** Remove temporary spoil piles and grade flat area smooth leaving no trash or debris.
- **Milton Diversion Dam Storage Gage Building (MI-5).** View from Henness Pass Road seen in foreground. The light color gage building introduces a high color contrast with the natural greens, grays, and blues. EVC IV. Note: Building is along the shoreline.
  - **Mitigation:** Paint the storage gage building a dark green. Consult with Forest Service regarding color.

Facilities on federal land administered by BLM and mitigation measures are:

- **None.**

Facilities on NID-owned land and mitigation measures are:

- **Faucherie Storage Gage Building YB 307 (located on the dam) and Flow Gage YB 308 (located immediately downstream of dam) (FA-5 and FA-3).** The dam and storage gage building YB 307 is seen in immediate foreground from the boat launch opposite Faucherie group campground in an observer normal position. View duration is moderate for boaters launching their boats and is representative of views from the lake. The gage storage building is fairly small but it does add an additional geometric shape that contrasts with the natural landscape.The light color gage building introduces a high color contrast with the natural greens, grays, and blues. EVC IV. Note: Building is along the shoreline.
  - **Mitigation:** Paint the storage gage building and flow gage box with a color that better blends with the surrounding landscape. Licensee to select appropriate color at the time of regular painting maintenance.
- **Bowman Lake/Milton Bowman Tunnel outlet Flow Gage Building YB 303 (BO-2).** Flow gage building YB 303 is seen in immediate foreground from an observer normal position from the Bowman Campground looking northeast. View duration is moderate to long for campers. The building is made of gray smooth concrete and creates a contrast to the rough and irregular textures and dark green forest of the surrounding landscape. The contrast is only evident in immediate foreground.
  - **Mitigation:** Stain the concrete block building a dark brown color to blend better into the landscape. Licensee to select appropriate stain at the time of regular painting maintenance.
- **Bowman Spaulding Conduit trash rack and associated fence at Fuller Lake (FU-2a and FU-1b).** The dam and associated facilities is seen in foreground from the roadside parking area in an observer normal position. The view duration is long for recreation users fishing, boating, and picnicking in this area. The dam has a dull gray tone that matches the native soil shoreline. However, the spillway/bridge, trash rack and building, and surrounding chain link fence create lines and geometric shapes that are in strong contrast to the surrounding native vegetation. Note: Facility is on PG&E land.
  - **Mitigation:** When the fence needs to be replaced, replace with appropriately colored fencing selected by Licensee.

SECTION 4

SCHEDULE FOR IMPLEMENTATION

Mitigation measures are listed in Table 4-1 below by facility, the required action, and the timeline to accomplish the action.

Table 4-1. Yuba Bear Project mitigation schedule.

NID Facilities	Action	Timeline
Jackson Meadow Dam traffic guard rail	Paint the outside of the white concrete guard rail a dark grey. Paint the outside of metal guard rail on the reservoir side a dark grey.	At the next scheduled painting period.
Jackson Meadow Dam Auxiliary Generator Building	Paint the white building a dark gray or dull green.	At the next scheduled painting period.
Jackson Meadow spoil piles	Remove temporary spoil piles and grade flat area smooth leaving no trash or debris.	Within two years of FERC's approval of Final License Application.
Milton Diversion Dam Storage Gage Building	Paint the storage gage building a dark green.	At the next scheduled painting period.
Faucherie Storage Gage Building YB 307 (located on the dam) and Flow Gage YB 308	Paint the storage gage building and flow gage box with a color that better blends with the surrounding landscape. Identify appropropriate color at the time of regular painting maintenance.	At the next scheduled painting period.
Bowman Lake/Milton Bowman Tunnel outlet Flow Gage Building YB 303 (BO-2	Stain the concrete block building a dark brown color to blend better into the landscape.	At the next scheduled painting period.
Bowman Spaulding Conduit trash rack and associated fence at Fuller Lake (FU-2a and FU-1b)	Replace the fence with appropriately colored fencing.	At the next scheduled replacement.

Page Left Blank

SECTION 5

REPORTING, CONSULTATION AND PLAN REVIEW

Over the term of the new license, additional consultation may occur, as necessary to ensure that the goals and objectives of the Plan are being met and the proposed measures are implemented. Consultation activities that will be conducted during the new license terms will include an Annual Coordination Meeting and periodic reporting of visual resource mitigation implementation as described below.

5.1 Consultation

5.1.1 Annual Coordination Meeting

Each year during the term of the license, Licensee shall arrange to meet with the Forest Service and BLM, as appropriate, for an annual meeting to discuss visual resource mitigation activities on federal land within the FERC Project Boundary. This coordination meeting is part of General Measure YB-GEN-1, Annual Consultation with Forest Service and BLM, and this Plan will be one of several resources to be discussed at the meeting.

At the Annual Coordination Meeting, Licensee shall review with the Forest Service and BLM its visual mitigation activities planned for the upcoming calendar year on federal land, identify any revisions needed, and make any adjustments to the Plan or schedule, as deemed appropriate.

5.1.2 Future Project Facility Modifications

For Project area modifications undertaken by Licensee that may result in changes to the visual environment, the following steps will be followed:

- **Step 1. Notify Forest Service and BLM.** Notify the Forest Service and BLM, as appropriate, of planned facility modifications, new facilities or new ground disturbing activities and identify any potential impacts to the existing visual environment on federal land within the Project Boundary.
- **Step 2. Develop Draft Visual Resource Protection Plan.** If determined by the Forest Service and BLM, as appropriate, that a visual resource protection plan (VRMP) for the modification is required, develop a draft VRMP that identifies the actions that will be taken to protect, enhance, and/or mitigate the visual resources impacted by the planned modification.
- **Step 3. Submit Plan for Review.** Provide a draft VRMP to the Forest Service and BLM, as appropriate, for review.
- **Step 4. Revise and Finalize Plan.** Revise and finalize the VRMP based on Forest Service and BLM, as appropriate, review comments.

- **Step 5. File Plan with FERC for Approval.** File the VRMP with FERC for approval. If any agency recommendations have not been adopted, describe the reason why the recommendation was not adopted. Implement the plan as approved by FERC.

These steps may be coordinated with other resources and be part of a larger notification report or submittal report.

Described below are the items a VRMP shall address:

- Description of Modification. Describe the proposed modification in terms of size, color, texture, and form. Describe location of the modification in the landscape
- Map. Provide a map that shows the location of the modification and displays the appropriate TNF VQOs or BLM VRM.
- Identify KVPs. Determine KVPs (i.e., where the modification may be viewed) on federal land. List roads, trails, lakes, and recreation sites on federal land from which the modification may be viewed. Identify the most important KVPs. Locate these viewpoints on a map and label them.
- Describe Visual Measures. Describe any measures that have been incorporated into the modification that will help protect, enhance, or mitigate the impact to the visual environment.
- Describe Visual Contrast. Estimate what the visual contrast will be from the proposed modification to the surrounding landscape in terms of line, color, texture, and form.
- Predict Ability to Meet VQO/VRM. Based on estimated visual contrast predict if the modification will meet TNF's VQOs and BLM's VRMs, as appropriate. If not, estimate what level will be met by the proposed modification.

The VRMP may be folded into a larger modification description, rather than be a stand-alone document.

5.2 Reporting

At the Annual Consultation Meeting, Licensee will provide to the Forest Service and BLM a report of visual mitigation activities completed in the previous calendar year on federal land. Upcoming new projects and updates will be reported during the Annual Coordination meeting described above. Reporting will be consistent with the requirements under General Measure YB Gen-1 and coordinated with other resource concerns. The annual reports will include the following information: name of facility where mitigation measure was applied, general description of the mitigation measure accomplished, an initial estimate of success of the visual mitigation measure, and any other applicable information.

5.3 Plan Revisions

Licensee, in consultation with the Forest Service and BLM will review, update, and/or revise the Plan, if significant changes in Project occur.

Any updates to the Plan will be prepared in coordination and consultation with the Forest Service and BLM. The Forest Service and BLM will have 60 days to comment and make recommendations before Licensee files the updated plan with FERC. Licensee will include all relevant documentation of coordination/consultation with the updated Plan filed with FERC. If Licensee does not adopt a specific agency recommendation, the filing will include the reasons for not doing so, based on project-specific information. Licensee will implement the Plan as approved by FERC.

Page Left Blank

SECTION 6

REFERENCES CITED

Nevada Irrigation District (NID) and Pacific Gas and Electric Company (PG&E). 2010. Technical Memorandum 10.1, Visual Quality. IN NID's Application for New License for the Yuba-Bear Hydroelectric Project.

United States Department of Agriculture, Forest Service (Forest Service). 1990. Tahoe National Forest Land and Resource Management Plan. USDA Forest Service, Pacific Southwest Region, San Francisco, CA. Available online: www.fs.fed.us/r5/rsl/clearinghouse/gis-down load.shtml

United States Department of the Interior, Bureau of Land Management (BLM). 2008. Sierra Resource Management Plan and Final Environmental Impact Statement. Folsom Field Office. Folsom, California.

Page Left Blank

Application for a New License
Major Project – Existing Dam

Canal Fish Rescue Plan

Yuba-Bear Hydroelectric Project
FERC Project No. 2266-096

Prepared by:
Nevada Irrigation District
1036 West Main Street
Grass Valley, CA 95945
www.nidwater.com

June 2012

Table of Contents

List of Tables

List of Figures

GLOSSARY - DEFINITION OF TERMS, ACRONYMS AND ABBREVIATIONS

Term	Definition
ac	acre
annual planned outage	An outage that is typically taken around the same time each year for routine maintenance.
BLM	United States Department of the Interior, Bureau of Land Management
canal	An open to the air water conveyance facility
CFR	Code of Federal Regulations
cfs	cubic feet per second
Commission	Federal Energy Regulatory Commission
dewater	The act of draining water from most if not all of a water conveyance facility.
canal	An earthern or gunite-lined canal
emergency outage	An outage due to an event that is out of the reasonable control of Licensee and requires Licensee to take immediate action, either unilaterally or under instruction by law enforcement or other regulatory agency staff, including actions to prevent the imminent loss of human life or property damage. An emergency may include, but is not limited to, natural events such as landslides, storms or wildfires, vandalism, malfunction or failure of Project works, or public safety incidents.
FERC	Federal Energy Regulatory Commission
flume	A wooden or concrete canal
Forest Service	United States Department of Agriculture, Forest Service
ft	feet
GPS	Global Positioning System
GIS	Geographic Information System
mi	mile
NID or Licensee	Nevada Irrigation District
non-routine planned outage	An outage for work that is high priority work and performed under planned conditions, but is not performed during the annual planned outage period.
O&M	operation and maintenance
PG&E	Pacific Gas and Electric Company
Project	Yuba-Bear Hydroelectric Project, FERC Project No. 2266
TNF	Tahoe National Forest
water conveyance facility	A Yuba-Bear Hydroelectric Project facility that transfers water from one Project feature to another Project feature.

Page Left Blank

SECTION 1

INTRODUCTION

1.1 Background

On April 15, 2011, Nevada Irrigation District (NID or Licensee), pursuant to Sections (§§) 5.17 and 5.18 of Title 18 of the Code of Federal Regulations (CFR), filed an application for a new license with the Federal Energy Regulatory Commission (FERC or Commission) for Licensee's Yuba-Bear Hydroelectric Project (Project), FERC Project No. 2266. The initial license for the Project, issued by the Federal Power Commission, FERC's predecessor, to Licensee on June 24, 1963, was effective on May 1, 1963, for a term ending April 30, 2013.

The Project is a water supply/power project located in the Middle Yuba River, Canyon Creek, Fall Creek, Rucker Creek, and Bear River basins in Nevada, Placer, and Sierra counties, California. The Project consists of four developments – Bowman, Dutch Flat, Chicago Park and Rollins – that collectively include nine on-stream reservoirs; three off-stream impoundments; two diversion dams; four powerhouses; one overhead, 60 kilovolt transmission line; and various water conduits and appurtenant facilities and structures, recreation facilities, and roads. Portions of the FERC Project Boundary occupy federal land managed by the United States Department of Agriculture, Forest Service (Forest Service) as part of the Tahoe National Forest (TNF), and portions occupy federal land administered by the United States Department of the Interior, Bureau of Land Management (BLM) in conformance with the Sierra Resource Management Plan.

Table 1.1-1 summarizes land ownership within the FERC Project Boundary. Figure 1.1-1 is a flow schematic depicting the Project.

Table 1.1-1. Summary of land ownership within the proposed Yuba-Bear Hydroelectric FERC Project Boundary by Project Development.[1]

Development	Forest Service (acres)	BLM (acres)	NID (acres)	Other Private (acres)	Total (acres)	Percent
Bowman	1,202.2	--	2,313.9	112.8	3,628.9	60%
Dutch Flat	205.1	13.9	53.1	89.4	383.7	6%
Chicago Park	--	77.0	48.1	70.3	195.4	3%
Rollins	--	140.2	1,690.6	7.3	1,838.1	30%
Bowman-Spaulding Transmission Line	28.2	--	1.9	28.2	58.3	1%
Total	**1,435.5**	**231.1**	**4,107.7**	**308.0**	**6,082.3**	**100%**
Percent	**24%**	**4%**	**67%**	**5%**	**100%**	**--**

[1] The Bowman-Spaulding Transmission Line, part of the Bowman Development, is shown separately because it is a linear facility.

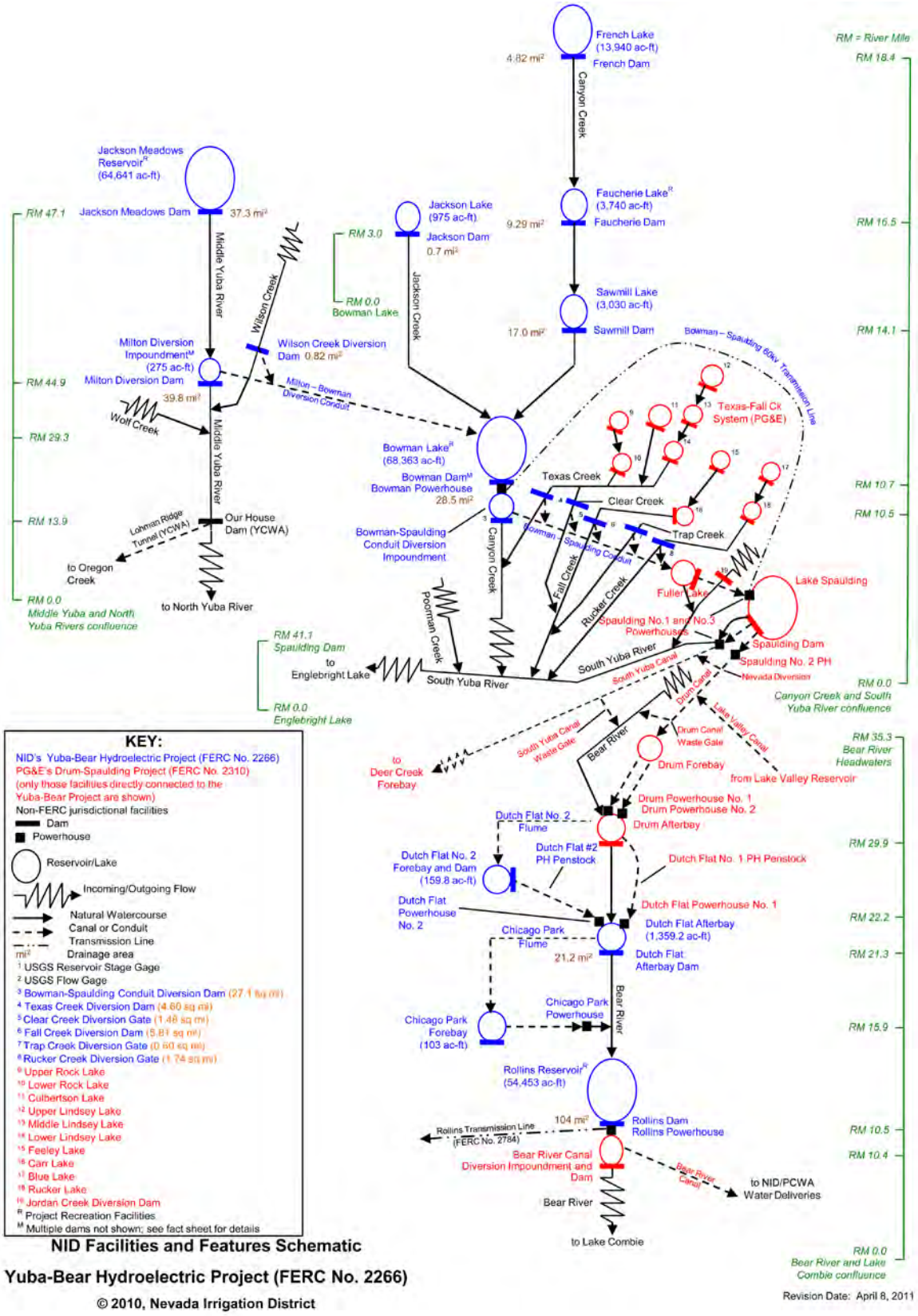


Figure 1.1-1. Yuba-Bear Hydroelectric Project flow schematic.

1.2 Purpose of the Canal Fish Rescue Plan

The Project includes water conveyance facilities (e.g., diversion conduits) that Licensee periodically dewaters (i.e., drains the water from most if not all of the facility) for the purpose of facilitating maintenance activities. The purpose of this Canal Fish Rescue Plan is to describe the activities and procedures Licensee implements to assure that fish in the water conveyance facilities are safely removed from the facility when it is dewatered. The Plan also describes the procedures Licensee follows to coordinate with appropriate federal and State agencies when implementing this Plan.

1.3 Goals and Objectives of the Canal Fish Rescue Plan

The primary goal of the Plan is assure minimum affect on fish that may be found in the Project's water conveyance facilities when those facilities are dewatered. The Plan includes the following objectives to help achieve this goal:

- To provide a description of the Project's water conveyance facilities that may be dewatered and where fish rescue will occur.
- To describe the procedures Licensee typically follows when dewatering the water conveyance facilities where fish rescues will occur, including the periods when and circumstances under which dewatering normally occurs.
- To describe the procedures and protocols, including agency consultations, Licensee will follow when performing fish rescue from the water conveyance facilities.

1.4 Contents of the Canal Fish Rescue Plan

This Plan includes the following:

- Section 1. This section includes introductory information, including the purpose and goal of the Plan.
- Section 2. This section describes existing water conveyance facilities in which fish rescue will occur.
- Section 3. This section describes the procedures Licensee typically follows when dewatering the water conveyance facilities where fish rescue will occur, including the periods when and circumstances under which dewatering normally occurs.
- Section 4. This section describes the procedures and protocols, including agency consultations, Licensee will follow when performing fish rescue from the water conveyance facilities.
- Section 5. This section describes reporting, consultation and Plan revisions.
- Section 6. This section lists references cited in this Plan.

Page Left Blank

SECTION 2

WATER CONVEYANCE FACILITIES WHERE FISH RESCUE WILL OCCUR

The Project includes eight water conveyance facilities. These include the following four diversion conduits and four penstocks:

- Diversion Conduits
  - Milton-Bowman Conduit
  - Bowman-Spaulding Conduit
  - Dutch Flat No. 2 Conduit
  - Chicago Park Conduit

- Penstocks
  - Bowman
  - Dutch Flat No. 2
  - Chicago Park
  - Rollins

The Milton-Bowman conduit is totally enclosed and mostly underground, therefore, fish rescue prior to dewatering is not practical. The four penstocks are rarely dewatered, so fish rescue is not needed.

Segments of the Bowman-Spaulding, Dutch Flat No. 2 and Chicago Park conduits are open (e.g., earthen or gunite-lined canals or concrete flumes) and may contain fish that could be safely removed prior to dewatering. Fish rescue from the underground (e.g., tunnel or siphon) sections of these water conveyance facilities is not necessary or practical – the underground sections are not drained during outages. Each of the open segments of the Bowman-Spaulding, Dutch Flat No. 2 and Chicago Park conduits is described below.

Fish rescues will only occur in those portions of open segments of the conduits that are dewatered (e.g., if Licensee dewaters only a portion of one segment during an outage, fish recues will only occur in the dewatered portion of the segment – not segments that are not dewatered at that time).

2.1 Bowman-Spaulding Conduit

The Bowman-Spaulding Conduit conveys a maximum of 300 cubic feet per second (cfs) of water approximately 10.74 mile (mi) from the Bowman-Spaulding Diversion Dam at elevation 5,394 feet (ft) to Pacific Gas and Electric Company's (PG&E) Drum-Spaulding Project's Fuller Lake at elevation 5,342 ft, then southeast to the conduit's terminus at Spaulding No. 3 Powerhouse Penstock header box at elevation 5,325 ft. The conduit is located on private property and federal land managed by the Forest Service, and includes eight canal segments, one canal and flume

segment, eight tunnels and one inverted siphon. The canal and flume segments total 6.74 mi (63%) of the total length of the conduit, and each of the nine segments are described below as one proceeds from the higher to lower elevations. The nearest road to each of the segments is noted. Figure 2.1-1 shows the Bowman-Spaulding Conduit and each of the nine canal and flume segments.

BSC-1 Segment (0.04-mi long canal)

The first canal segment extends approximately 0.04 mi from the Bowman-Spaulding Diversion Dam south to Portal Tunnel No. 3, which transitions into Portal Tunnel No 1 at the Bowman South Dam Spillway Channel. The canal is approximately 5.5 ft high and 6 to 8 ft wide. This segment is gunite lined. The segment is accessed via the Bowman Powerhouse Access Road.

BSC-2 Segment (0.22-mi long canal)

The second canal segment extends approximately 0.22 mi south from the end of Portal Tunnel No. 1 to the Bowman Tunnel. The canal is approximately 5.5 ft high and 6 to 8 ft wide. This segment is gunite lined and the nearest road is the Bowman Road.

BSC-3 Segment (0.91-mi long canal)

From the end of the Bowman Tunnel, a gunite-lined canal extends south approximately 0.91 mi to the Texas Creek Bypass Tunnel. The canal is approximately 5.5 ft high and 6 to 8 ft wide, and the nearest road is the Bowman-Spaulding Berm Road.

BSC-4 Segment (0.02-mi long canal)

From the end of the Texas Creek Diversion Dam outlet, a gunite-lined canal extends south approximately 0.02 mi to Tunnel No. 5. The canal is approximately 5 ft high and 6 ft wide. Access to this segment is via Bowman-Spaulding Berm Road.

BSC-5 Segment (1.45-mi long canal)

From the end of Tunnel No. 5, the gunite-lined canal continues south approximately 1.45 mi to the Clear Creek Tunnel. The canal is approximately 6 ft high and 12 to 13 ft wide, and access to this segment is via Box Car Section Road.

BSC-6 Segment (3.53-mi long canal, with 0.02-mi long flume)

Segment 6 begins at the outlet of the Clear Creek Tunnel and continues approximately 3.55 mi southeast to the Rucker Tunnel, which discharges into Pacific Gas and Electric Companies (PG&E) Fuller Lake. Segment 6 consists of 3.53 mi of gunite-lined canal that is approximately 6 ft high and 12 to 13 ft wide. Where Segment 6 crosses Fall Creek, the canal transitions to a 0.02-mi-long flume and then back to a canal. The flume is "U" shaped, constructed of metal, and is 7.3 ft deep and 14 ft wide. Access to this segment is via Bowman-Spaulding Berm Road.

BSC-7 Segment (0.31-mi long canal)

From PG&E's Fuller Lake Dam, a gunite-lined canal proceeds east approximately 0.31 mi to the Zion Hill Tunnel. The canal is approximately 5.5 ft high and 10 ft wide. Access to this segment is via Canal Access Rd.

BSC-8 Segment (0.06-mi long canal)

From the end of the Zion Hill Tunnel the gunite-lined canal continues east approximately 0.06 mi to the Jordan Creek Siphon. The canal is approximately 5.5 ft high and 10 ft wide. Access to this segment is via the Canal Access Road.

BSC-9 Segment (0.18-mi long canal)

From the end of the Jordan Creek Siphon, the gunite-lined canal continues east approximately 0.18 mi to PG&E's Spaulding No. 3 Penstock. The canal is approximately 5.5 ft high and 10 ft wide, and access to this segment is via the Canal Access Road.

Page Left Blank

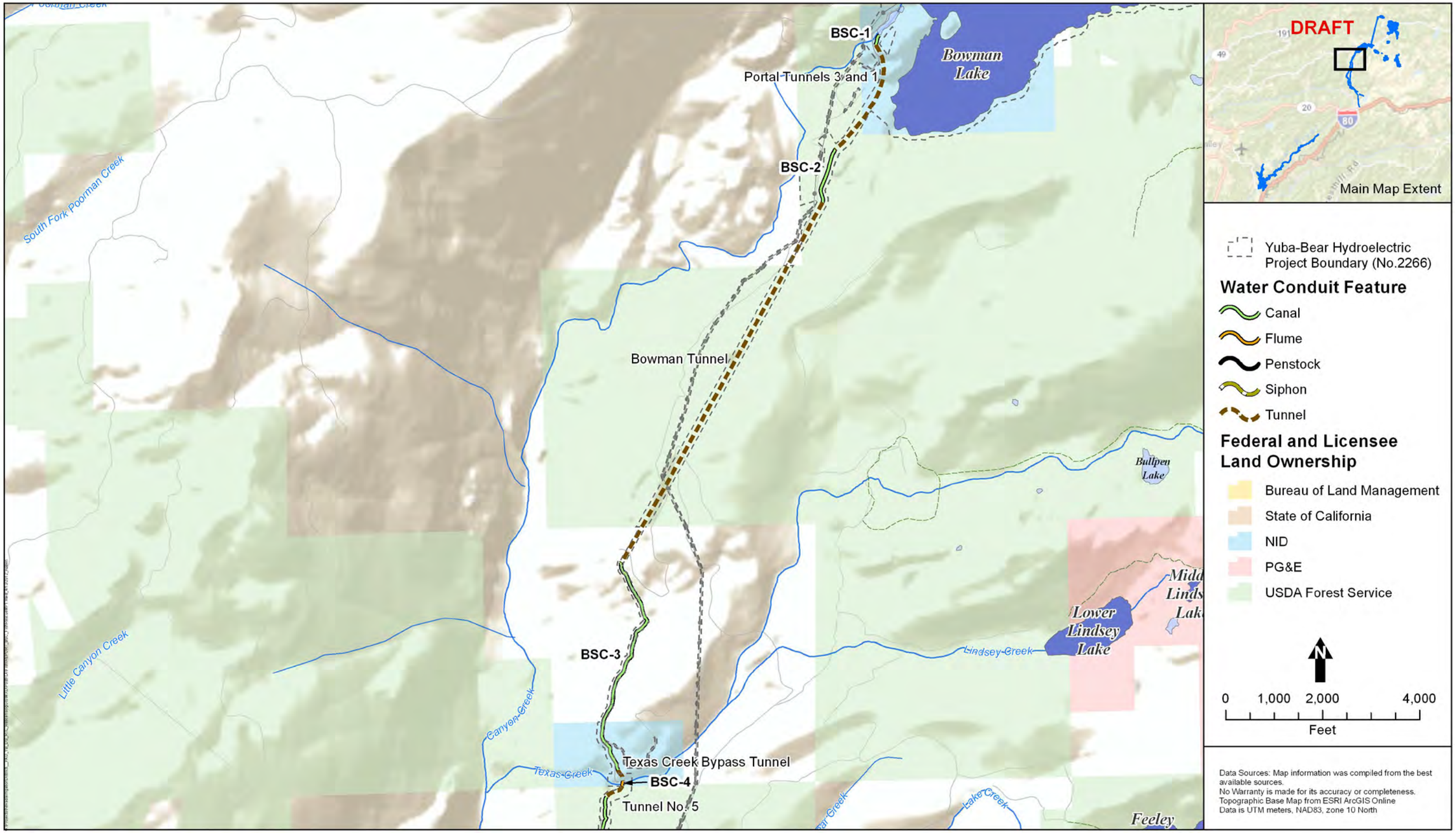


Figure 2.1-1. Bowman-Spaulding Conduit showing the nine canal and flume segments (i.e., BSC-1 through BSC-9).

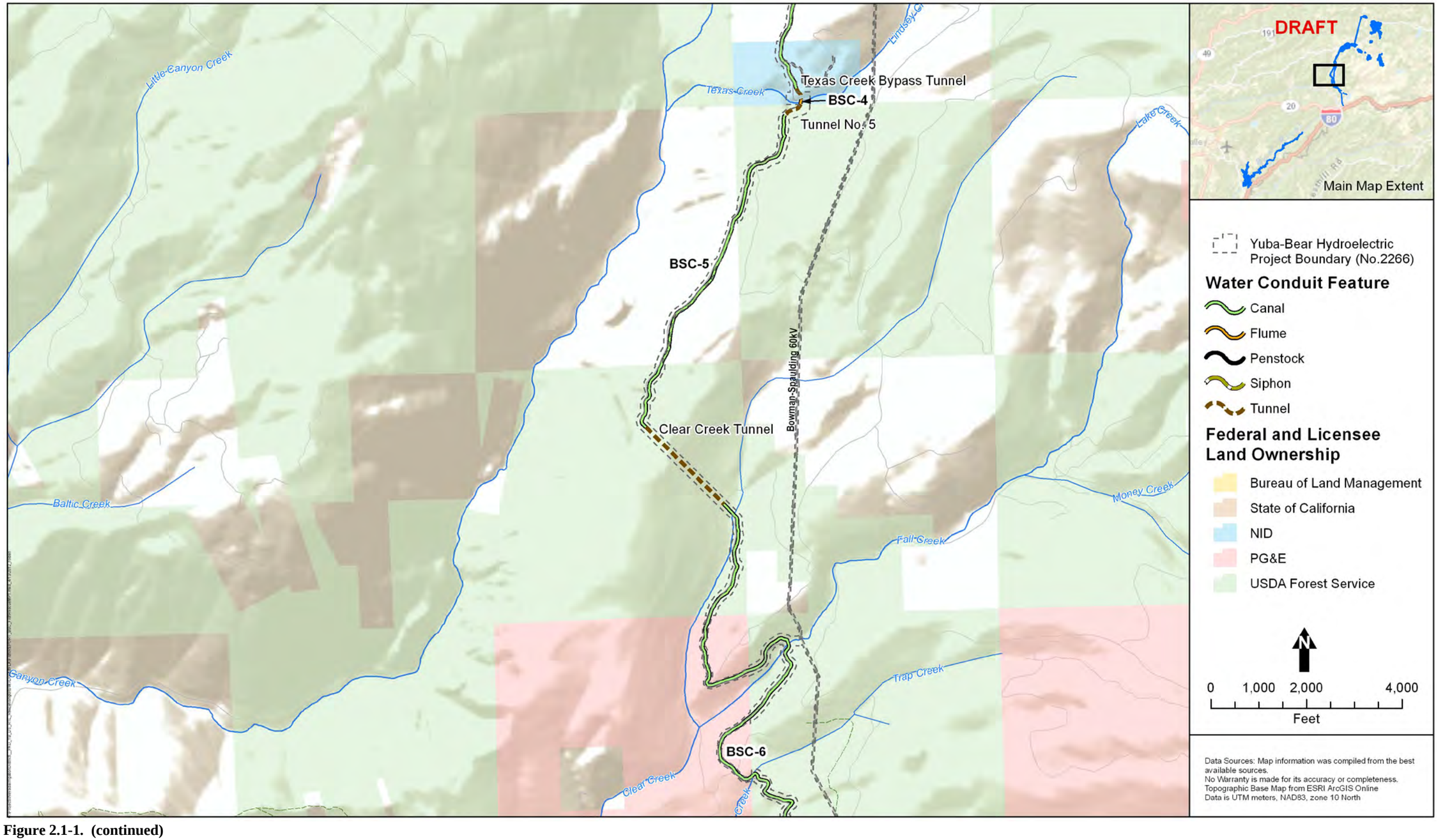


Figure 2.1-1. (continued)

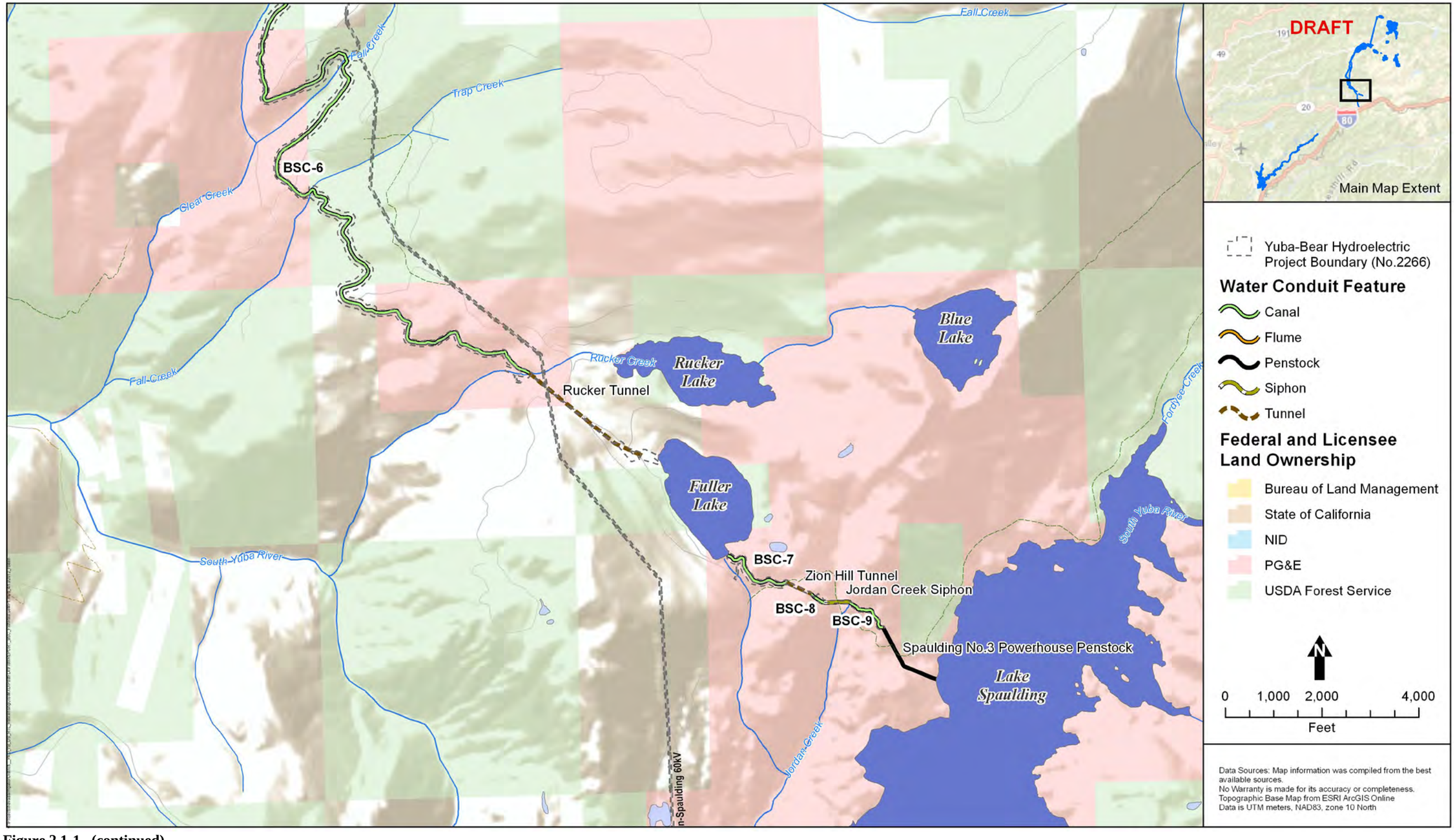


Figure 2.1-1. (continued)

Page Left Blank

2.2 Dutch Flat No. 2 Conduit

The Dutch Flat No. 2 conduit is a combination of tunnel, flume, inverted siphon, and canal that diverts a maximum of 610 cfs of water from PG&E's Drum-Spaulding Project's Drum Afterbay approximately 4.68 mi to the Yuba-Bear Hydroelectric Project's Dutch Flat No. 2 Forebay. The conduit follows the Bear River along the north side of the Bear River canyon and generally maintains an elevation of approximately 3,330 ft. The conduit is located on private property and federal land managed by the Forest Service, and includes one flume segment and one canal segment. The canal and flume segments total 4.31 mi (92%) of the total length of the conduit, and each is described below as one proceeds from the higher to lower elevations. The nearest road to each segment is noted. Figure 2.2-1 shows the Dutch Flat No. 2 Conduit and the canal and flume segments.

DF-1 Segment (3.56-mi-long flume)

From the Drum Afterbay, an 8 ft tall and 10 ft wide concrete box bench flume extends approximately 3.56 mi southwest to an inverted siphon located at Stump Canyon. Access to this segment is via the Dutch Flat No. 2 Conduit Intake Access Road and "B" Alarm Road, both of which originate from the Drum Powerhouse Road.

DF-2 Segment (0.75-mi-long canal)

From the west side of Stump Canyon, an approximately 20 to 25 feet wide gunite-lined canal extends approximately 0.75 mi to the Dutch Flat No. 2 Forebay. The canal is more than 5 ft deep in sections. Access to this segment is via a gated berm road, which originates at the Dutch Flat Forebay and ends at the outlet of the Stump Canyon Siphon.

Page Left Blank

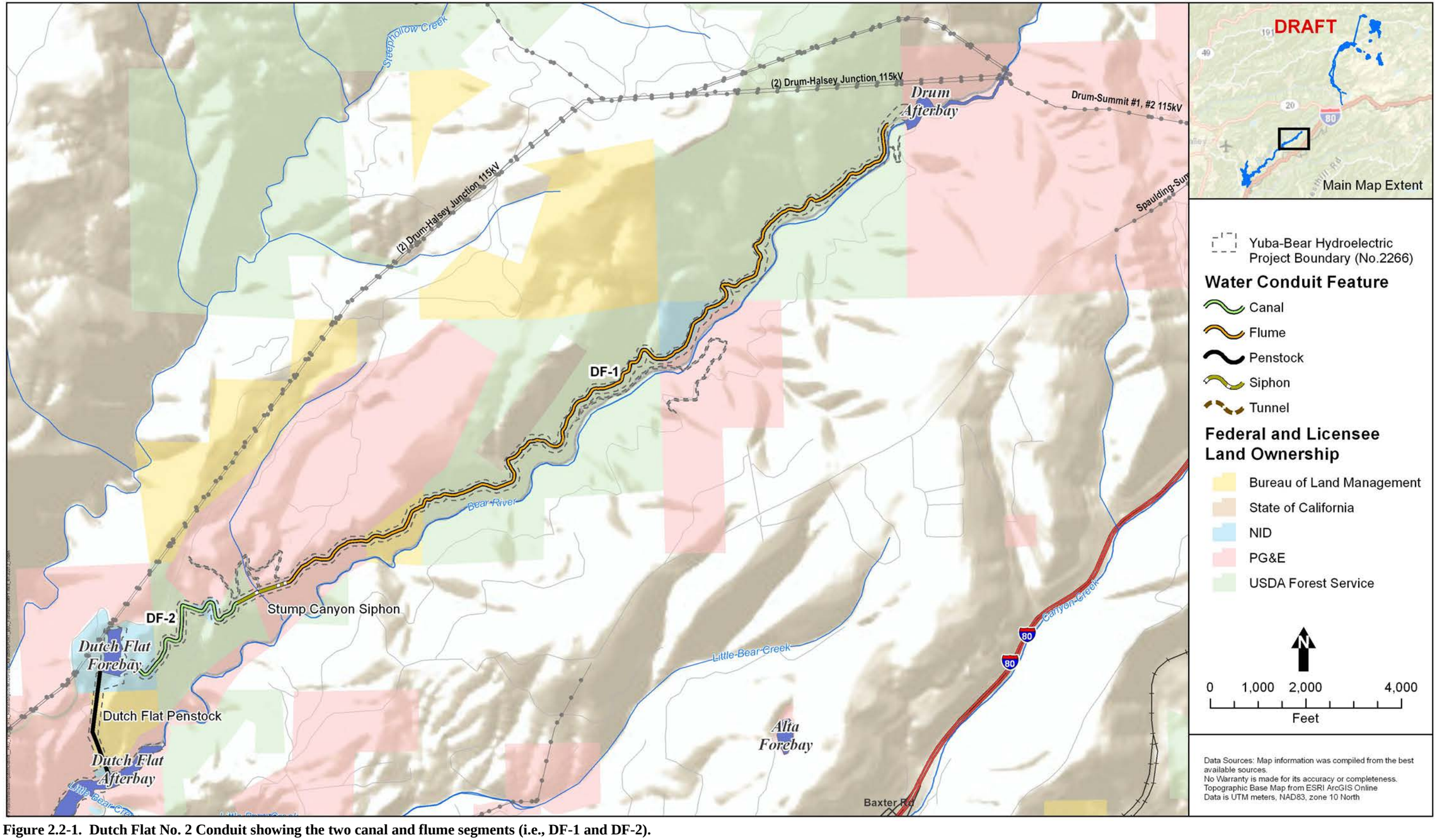


Figure 2.2-1. Dutch Flat No. 2 Conduit showing the two canal and flume segments (i.e., DF-1 and DF-2).

Page Left Blank

2.3 Chicago Park Conduit

The Chicago Park conduit diverts a maximum of 1.100 cfs of water from the Dutch Flat Afterbay 4.11 mi to the Chicago Park Forebay. The conduit parallels the Bear River along the north side of the canyon and generally maintains an elevation of approximately 2,780 ft. The conduit is located on private property and federal land managed by BLM, and includes a concrete box bench flume segment and a gunite-lined canal. The canal and flume segments total 3.59 mi (87%) of the total length of the conduit, and each is described below as one proceeds from the higher to lower elevations. The nearest road to each segment is noted. Figure 2.3-1 shows the Chicago Park Conduit and the canal and flume segments.

CP-1 Segment (2.80-mi-long flume)

From the Dutch Flat Afterbay, a concrete flume conveys water 2.80 mi southwest to the Little York Basin. The concrete flume is box shaped, 10 ft tall and 18 ft wide. Access to this segment is via Diggins Hill Road; "A" Alarm Road, which originates at Lowell Hill Road; and Dutch Flat Crossing Road.

CP-2 Segment (0.79-mi-long canal)

A gunite-lined excavated canal transfers water from the Little York Basin approximately 0.79 mi southwest to the Chicago Park Forebay. The canal is approximately 25 to 30 ft wide and more than 5 ft deep, and has fairly steep slopes. Access to this segment is via Little York Basin Access Road, which originates at Lowell Hill Road and Chicago Park Forebay Road.

Page Left Blank

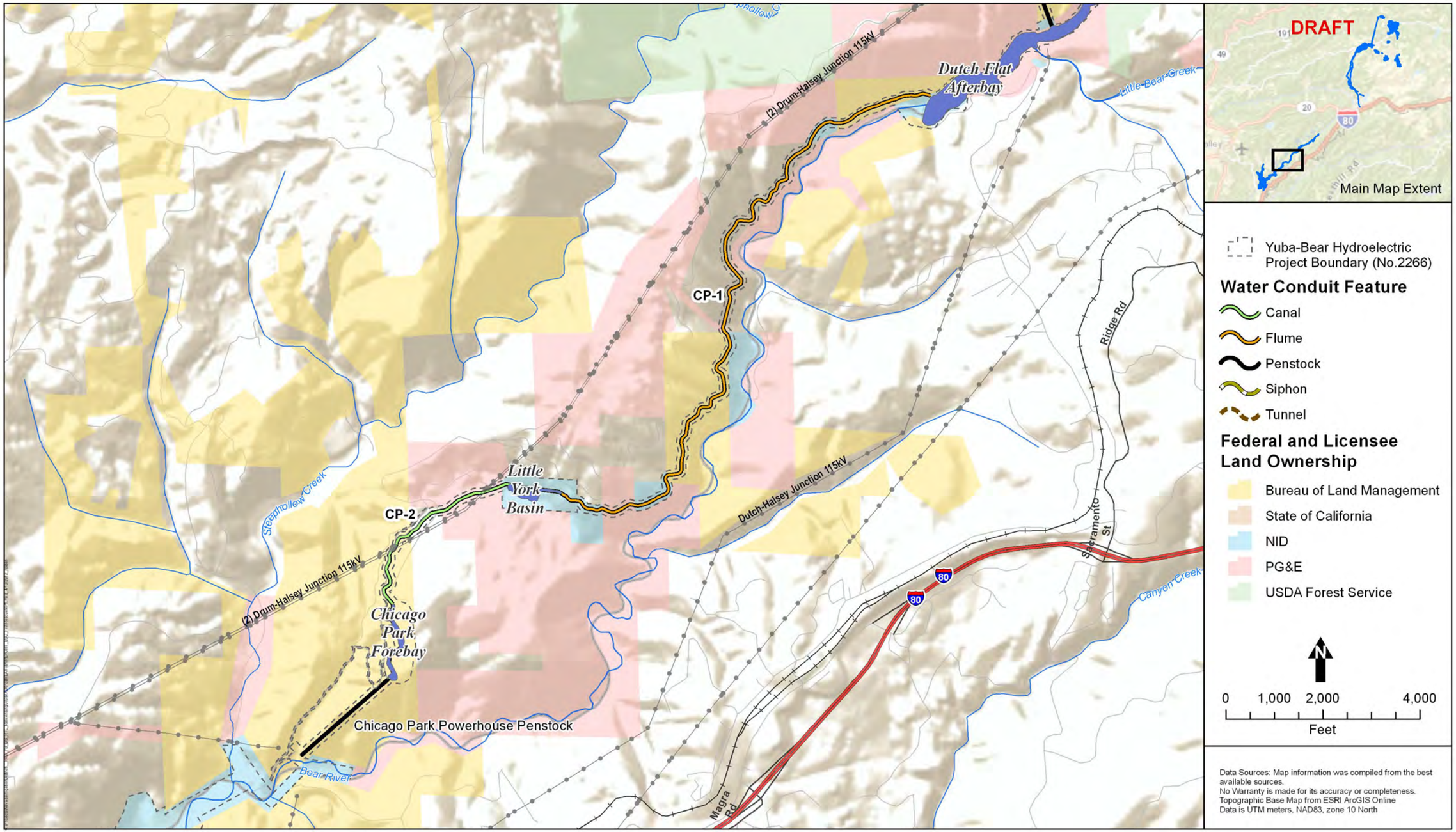


Figure 2.3-1. Chicago Park Conduit showing the two canal and flume segments (i.e., CP-1 and CP-2).

Page Left Blank

SECTION 3

TYPICAL CANAL DEWATERING PROCEDURES

This section describes the procedures Licensee typically follows when dewatering the Bowman-Spaulding, Dutch Flat No. 2 and Chicago Park conduits.

In general, dewatering of the water conveyance facilities occurs due to outages. There are three types of canal outages:

- Annual planned outages, which is an outage that is typically taken around the same time each year for routine maintenance.
- Non-routine planned outages, which is an outage for work that is high priority work and performed under planned conditions, but is not performed during the annual planned outage period.
- Emergency outages, which is an outage due to an event that is out of the reasonable control of Licensee and requires Licensee to take immediate action, either unilaterally or under instruction by law enforcement or other regulatory agency staff, including actions to prevent the imminent loss of human life or property damage. An emergency may include, but is not limited to, natural events such as landslides, storms or wildfires, vandalism, malfunction or failure of Project works, or public safety incidents.

Canal fish rescue will occur in the dewatered portions of the conduit prior to annual planned outages and non-routine planned outages (i.e., Licensee does not necessarily dewater all of a conduit during an outage.). Fish rescues will not occur during emergency outages because time is of the essence when dewatering a conveyance facility. However, if the emergency dewatering extends beyond 30 days, Licensee shall consult with SWRCB, CDFG, FS, and BLM.

3.1 Bowman-Spaulding Conduit

Annual planned outages of the Bowman-Spaulding Conduit are normally, but not always, taken for approximately a 2-week period sometime between mid-June and early July. Non-routine planned outages may be taken at any time.

Licensee typically dewaters the Bowman-Spaulding Conduit by closing the upstream end of the conduit. Water is allowed to slowly drain from the conduit into Fuller Lake. When most of the water is drained from the section of the conduit from the Bowman-Spaulding Diversion to the Texas Creek Diversion intake, Licensee opens the low level valve in the Texas Creek Diversion Dam to allow the water in the diversion to drain into Texas Creek below the Diversion. This also allows water from Texas Creek above the Diversion to pass through to below the Diversion.

When most of the water is drained from the conduit to the Clear Creek dump gate, Licensee opens the dump gate to facilitate draining of the canal. Opening of the Clear Creek dump gate

allows inflow from Clear Creek above the Bowman-Spaulding Conduit to pass directly into Clear Creek below the Bowman-Spaulding Conduit.

The Fall Creek Diversion is operated to not divert water into the Fall Creek Flume, which discharges into the Bowman Spaulding Conduit. The Fall Creek Diversion Dam dump gate is opened and the inlet gate to the Fall Creek Diversion Dam is closed. Under this arrangement, water from upstream of the Diversion passes through the Diversion to Fall Creek below the Diversion.

When most of the water is drained at Trap Creek, the dump gate is opened which allows the inflow from Trap Creek above the Bowman-Spaulding Conduit to flow to Trap Creek below the Conduit.

When most of the water is drained at the Rucker dump gate, the dump gate is opened to drain any remaining water into Rucker Creek below the Conduit. However, the Rucker dump gate is located upstream of where Rucker Creek flows into the Conduit. The water from Rucker Creek flows into the Rucker Tunnel which discharges into Fuller Lake.

Licensee has found that it normally takes about 4 hours to dewater the section of the Bowman-Spaulding Conduit from the Bowman-Spaulding Diversion Intake to Fuller Lake.

To dewater the section of the Bowman Spaulding Conduit from Fuller Lake to the Spaulding #3 penstock, the Fuller Lake outlet radial gate is closed. This prevents water from entering the section of the Bowman-Spaulding Conduit from Fuller Lake to Spaulding #3 Penstock.

When most of the water is drained at the Jordan Creek dump gate, Licensee opens the dump gate. When most of the water is drained at the intake to the Spaulding #3 Penstock Header Box, PG&E opens the Header Box dump gate.

3.2 Dutch Flat No. 2 Conduit

Annual planned outages of the Dutch Flat No. 2 Conduit are normally, but not always, taken for approximately a 2-week period sometime between mid-September and early October. Non-routine planned outages may be taken at any time.

Licensee typically dewaters the Dutch Flat No. 2 Conduit by closing the upstream end of the conduit. Water is allowed to slowly drain from the conduit into Dutch Flat Afterbay.

Licensee has found that it normally takes about 1.5 hours to dewater the Dutch Flat No. 2 Conduit.

3.3 Chicago Park Conduit

Annual planned outages of the Chicago Park Conduit are normally, but not always, taken for approximately a 2-week period sometime between mid-September and early October. Non-routine planned outages may be taken at any time.

Licensee typically dewaters the Chicago Park Conduit by closing the upstream end of the conduit. Water is allowed to slowly drain from the conduit into Little York Basin and the Chicago Park Forebay.

Little York Basin is deep enough so that it holds a large volume of water for the duration of the outage. Unless work is planned that would require the Chicago Park Forebay to be "drained," the forebay holds sufficient water to sustain aquatic life for the duration of the outage.

Licensee has found that it normally takes about 1.5 hours to dewater the Chicago Park Conduit.

Page Left Blank

SECTION 4

FISH RESCUE PROCEDURES

This section describes the procedures and protocols Licensee will follow when performing fish rescue from the Bowman-Spaulding, Dutch Flat No. 2 and Chicago Park conduits.

Fish rescues will occur in dewatered portions of conduits when License anticipates that the conduit may be dewatered for more than 5 consecutive days; fish rescues will not occur when dewatering occurs for 5 or fewer days because fish can successfully holdover in the conduit (i.e. in depressions) when the conduit is dewatered for about a week.

4.1 Fish Collection Procedures

At least 7 days in advance of a fish rescue, NID will notify via e-mail the Forest Service, BLM, California Department of Fish and Game (CDFG) and State Water Resources Control Board (SWRCB) of the planned fish rescue effort so that they may observe the effort should they wish to do so.

During dewatering either the Bowman-Spaulding Conduit, Dutch Flat No.2 Conduit or Chicago Park Conduit and prior to implementation of any maintenance activities in the conduit, Licensee will make a good faith effort to capture all fish from the accessible segments (i.e., not from tunnels or siphon sections) of the dewatered conduit. During dewatering, fish normally congregate in low sections of the conduits, such as near the Bowman-Spaulding Conduit dump gates. Fish will be efficiently and expeditiously captured using a combination of beach seines, block nets, dip nets and other procedures that mimimize injury to fish. Captured fish will be retained in buckets filled with canal water and aerated with a battery powered airstone to minimize injury or stress to fish until the fish are either placed into a transport vehicle (See Section 4.3) or deposited directly into nearby surface waters (Section 4.4). A sufficient number of buckets or frequent transport will be implemented to ensure that fish are not overly crowded in the buckets while being held.

4.2 Data Collection

Licensee will work in tandem to capture and document captured fish. During the capture of the fish in each canal segment, Licensee will make a good faith effort to estimate by species (e.g., rainbow trout and brown trout) or guild (e.g., pikeminnow or minnow guilds), the number and lengths of fish captured. However, detailed counts of fish, including weights and length measurements, will not be made because time is of the essence to capture the fish and deposit them in nearby surface waters. Any hardhead, a State of California Species of Special Concern, captured will be noted.

All reasonable efforts will be taken to ensure 100 percent survival of captured and transported fish. Any fish mortalities will be documented at the release point and, unless agency

representatives on site direct the operator's otherwise, dead fish will be deposited to the receiving stream.

4.3 Holding and Transport

Operators will either deposit the captured fish in the aerated buckets directly into nearby surface waters (see Section 4.4) or will place the fish in trucks containing a transport container/tub, whichever is most expeditious. Fish transported by vehicle will be relocated to destinations described in Section 4.4, where they will be moved from the transport container to the surface water. Fish will not be held for more than an hour at a time, but an effort to release them every 30 minutes will be made.

Upon reaching the planned destination specified in Section 4.4, fish will be discretely released. Fish transported by vehicle will be transferred from the transport container into buckets filled with fresh river water. All released fish will be walked to the waters edged and lowered into the water where fish will be allowed to volitionally swim away. When a relatively higher number of fish are transported, effort will be made to not put all of the fish in a single entry point; rather fish will be distributed in readily accessible areas upstream and downstream to avoid predation.

4.4 Destination of Fish Rescued from Canals

Table 4.4-1 describes the default destinations at which Licensee will deposit the fish collected in dewatered conduits unless the Forest Service, BLM, CDFG and SWRCB approve an alternate destination.

Table 4.4-1. Locations at which Licensee will deposit fish captured in dewatered conduits.

Segment	Surface Water in Which Captured Fish Will be Deposited
BOWMAN-SPAULDING CONDUIT	
BSC-1 Segment	Canyon Creek Immediately Downstream of the Bowman-Spaulding Diversion Dam
BSC-2 Segment	
BSC-3 Segment	Texas Creek Immediately Downstream of the Bowman-Spaulding Conduit
BSC-4 Segment	
BSC-5 Segment	
BSC-6 Segment	Either Clear, Fall or Rucker creeks Immediately Downstream of the Bowman-Spaulding Conduit
BSC-7 Segment	Fuller Lake
BSC-8 Segment	
BSC-9 Segment	
DUTCH FLAT NO. 2 CONDUIT	
DF-1 Segment	Dutch Flat Forebay
DF-2 Segment	
CHICAGO PARK CONDUIT	
CP-1 Segment	Little York Basin
CP-2 Segment	Chicago Park Forebay

SECTION 5

REPORTING, CONSULTATION, AND PLAN REVISIONS

Over the term of the new license, additional consultation may occur, as necessary to ensure that the goals and objectives of the Plan are being met. Consultation activities that will be conducted during the new license term will include an Annual Coordination Meeting and periodic reporting of canal fish rescues, as described below.

5.1 Reporting

By the end of each calendar year in which a fish rescue is performed, Licensee will provide to the CDFG, SWRCB and the Forest Service or BLM, as applicable,[1] a brief letter report summarizing the results of the fish rescues in that calendar year. The summary will include by water conveyance facility: 1) when the dewatering occurred, including beginning flows and rate of dewatering; 2) estimated number and lengths of fish captured by species and segment; 3) brief summary of an observed fish abnormalities or parasites; 4) location where fish were deposited, including estimated holding time; 5) any observed fish mortality (#); and 6) incidental observations. The letter report will also include a list of any canal fish rescues planned for the upcoming calendar year that Licensee are aware of when the letter report is prepared.

5.2 Annual Consultation Meeting

Each year during the term of the license, Licensee shall arrange to meet with the CDFG, SWRCB, Forest Service and BLM for an annual meeting as described in Measure YB-GEN1, *Annual Meeting*, to discuss canal fish rescues that occurred in the previous calendar year and planned fish rescues in the upcoming calendar year. The date of the meeting will be mutually agreed to by Licensee, CDFG, SWRCB, Forest Service and BLM, but in general will be held within the first 90 days of each calendar year.

5.3 Plan Revisions

Licensee, in consultation with CDFG, SWRCB, Forest Service and BLM will review, update, and/or revise the Plan, if significant changes in Project or operations occur. If the parties agree a Plan revision is warranted, Licensee will revise the Plan and provide to CDFG, SWRCB, Forest Service and BLM a draft revised Plan for a 60-day review and comment period. Following the review and comment period, Licensee will file the revised Plan with the Commission. Licensee will include all relevant documentation of coordination/consultation with the revised Plan, and if Licensee did not adopt a specific agency recommendation, the filing will include the reason why

[1] The letter will be provided to the Forest Service if the letter includes fish rescue efforts in the Bowman-Spaulding Conduit or Dutch Flat No. 2 Conduit, and will be provided to BLM if the letter includes fish rescue efforts in the Chicago Park Conduit.

Licensee did not adopt the recommendation. Licensee will implement the revised Plan as approved by the Commission.

SECTION 6

REFERENCES CITED

None.

Page Left Blank

Application for a New License
Major Project – Existing Dam

Bald Eagle Management Plan

Yuba-Bear Hydroelectric Project
FERC Project No. 2266-096

Prepared by:
Nevada Irrigation District
1036 West Main Street
Grass Valley, CA 95945
www.nidwater.com

June 2012

Table of Contents

List of Tables

List of Figures

List of Attachments

GLOSSARY - DEFINITIONS OF TERMS, ACRONYMS AND ABBREVIATIONS

ac	acre
ac-ft	acre-feet
BLM	United States Department of the Interior, Bureau of Land Management
CDFG	California Department of Fish and Game
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CNDDB	California Natural Diversity Database
DDT	dichlorodiphenyltrichloroethane
ESA	federal Endangered Species Act
FERC	Federal Energy Regulatory Commission
Forest Service	United States Department of Agriculture
FR	Federal Register
ft	feet
GIS	Geographic Information System
kV	kilovolt
LOP	limited operating period
MBTA	Migratory Bird Treaty Act of 1918
MW	megawatt
NID or Licensee	Nevada Irrigation District
O&M	operation and maintenance
Plan	Bald Eagle Management Plan
Project	Yuba-Bear Hydroelectric Project, FERC Project No. 2266
Recovery Plan	1986 Pacific States Bald Eagle Recovery Plan
TNF	Tahoe National Forest
USFWS	United States Department of the Interior, Fish and Wildlife Service

Page Left Blank

SECTION 1

INTRODUCTION

1.1 Background

In April 2011, Nevada Irrigation District (NID or Licensee), pursuant to Sections (§§) 5.17 and 5.18 of Title 18 of the Code of Federal Regulations (CFR), filed an application for a new license with the Federal Energy Regulatory Commission (FERC) for NID's Yuba-Bear Hydroelectric Project (Project), FERC Project No. 2266. The initial license for the Project was issued by the Federal Power Commission, FERC's predecessor, to NID on June 24, 1963, effective on May 1, 1963, for a term ending April 30, 2013.

The Project is a water supply/power project located in the Middle Yuba River, Canyon Creek, Fall Creek, Rucker Creek, and Bear River basins in Nevada, Placer, and Sierra counties, California. The Project consists of four developments – Bowman, Dutch Flat, Chicago Park and Rollins – that collectively include nine on-stream reservoirs; three off-stream impoundments; two diversion dams; four powerhouses; one overhead, 60 kilovolt (kV) transmission line; and various water conduits and appurtenant facilities and structures and Project roads.

Some of the area within the FERC Project Boundary, as shown in Exhibit G of Licensee's application for a new license, occupies federally owned National Forest System land managed by the United States Department of Agriculture, Forest Service (Forest Service) as part of the Tahoe National Forest (TNF), and some is federally owned land administered by the United States Department of the Interior, Bureau of Land Management (BLM) in conformance with the Sierra Resource Management Plan (BLM 2008).

Table 1.1-1 summarizes land ownership within the proposed Yuba-Bear Hydroelectric Project.

Table 1.1-1. Summary of land ownership within the proposed Yuba-Bear Hydroelectric FERC Project Boundary by Project Development.[1]

Development	Forest Service (ac)	BLM (ac)	NID (ac)	Other Private (ac)	Total (ac)	Percent
PROPOSED FERC PROJECT BOUNDARY						
Bowman	1,202.2	--	2,313.9	112.8	3,628.9	60%
Dutch Flat	205.1	13.9	53.1	89.4	383.7	6%
Chicago Park	--	77.0	48.1	70.3	195.4	3%
Rollins	--	140.2	1,690.6	7.3	1,838.1	30%
Bowman-Spaulding Transmission Line	28.2	--	1.9	28.2	58.3	1%
Total	**1,435.5**	**231.1**	**4,107.7**	**308.0**	**6,082.3**	**100%**
Percent	**24%**	**4%**	**67%**	**5%**	**100%**	**--**

ac = acre

[1] The Bowman-Spaulding Transmission Line, part of the Bowman Development, is shown separately because it is a linear facility.

1.2 Purpose of the Bald Eagle Management Plan

The Bald Eagle Management Plan (Plan) is intended to provide guidance for the protection of bald eagles (*Haliaeetus leucocephalus*) nesting within FERC's Project Boundary that may be affected by the Project.

1.3 Goals and Objectives of the Bald Eagle Management Plan

The goal of the Plan is to ensure that Project operation and maintenance (O&M), as well as Project related recreation activities do not disturb nesting birds by implementing measures such as Limited Operating Periods (LOPs) that are consistent with federal and State of California guidelines.

The objective of the Plan is to provide the guidance necessary to meet Plan goals.

1.4 Contents of the Bald Eagle Management Plan

- Section 1. Introduction – This section includes an overview of the Project, and the purpose, goals and objectives of the Plan.
- Section 2. Bald Eagle Life History and Distribution – This section provides a physical description of bald eagles, their life history as well as distribution throughout California and the Project.
- Section 3. Recovery, Status and Protection – This section describes the species (bald eagle) listing status, recovery and major State and federal laws affording protection.
- Section 4. Bald Eagle Protection – This section describes bald eagle protection measures for the Project.
- Section 5. Reporting, Consultation and Plan Review – This section describes reporting, consultation and other requirements regarding bald eagles between Licensee, TNF, BLM, United States Department of Interior, Fish and Wildlife Service (USFWS), and the California Department of Fish and Game (CDFG).

SECTION 2

BALD EAGLE LIFE HISTORY AND DISTRIBUTION

2.1 Physical Characteristics

The bald eagle is a large raptor with a wingspan between 6 and 8 feet (ft), and can weigh up to 14 pounds. According to Jackman and Jenkins (2004), bald eagles molt through five plumage phases. These five phases are important for establishing the age of an individual as well as distinguishing them from golden eagles (*Aquila chrysaetos*)[1]. The five plumage phases are:

- Juvenile (first year) – mostly dark including head and beak.
- Basic I (second year) – mottled with white belly and inverted triangle on back and head crown is tan.
- Basic II (third year) – body is mottled and variable with the head having a light crown and throat and dark eye stripe similar to an osprey's head.
- Basic III (fourth year) – plumage is mostly adult like with brown flecking on head and fading eye stripe, mostly yellow beak, some white flecking on belly and chest, and a brown terminal band on an otherwise white tail.
- Basic IV (fifth year) – often indistinguishable from adult plumage, but does contain some brown flecking on the head and tail.

In addition to the plumage phases listed above, bald eagles may be further distinguished from golden eagles by their proportionately larger head and bill.

2.2 Life History

2.2.1 Nesting and Breeding

Bald eagles typically nest within 1 mile of water bodies. Their nests are large structures (approximately 6 ft in diameter), and are constructed with sticks. Nests are often found in the upper third of live, dominant or co-dominant trees, with some canopy above the nest that provides some shade. Most nest trees exceed 100 ft in height. A single pair will use the same nest each year, and will often have alternate nests within their breeding territory. Bald eagle nests may often be confused with osprey (*Pandion haliaetus*) nests.[2] However, osprey nests are smaller, more rounded (resembling a tea cup without its handle), and are placed on top of dead trees (snags) or man-made structures such as power poles.

Bald eagles begin to breed at around five to six years of age (NatureServe 2010). The breeding period for bald eagles varies throughout their range and can often be influenced by weather but typically begins between January and mid March with courtship and nest initiation, and ends

[1] Golden eagle are classified as CDFG Fully Protected.
[2] Osprey are not designated as a special-status species by the Forest Service, BLM, or CDFG.

when young fledge sometime in June or July. Table 2.2-1 outlines breeding chronology in Northern California.

Table 2.2-1. Bald eagle breeding chronology in Northern California.

Breeding Activity	Jan	Feb	Mar	Apr	May	June	July	Aug
Courtship, Nest Initiation	X	X	X	--	--	--	--	--
Egg Laying	--	X	X	--	--	--	--	--
Incubation	--	X	X	X	--	--	--	--
Hatching	--	--	X	X	X	--	--	--
Nestlings	--	--	X	X	X	X	X	--
Fledging	--	--	--	--	--	X	X	--
Post Fledging	--	--	--	--	--	X	X	X
Migration	--	--	--	--	--	--	X	X

Source: Jackman and Jenkins 2004
X indicates breeding activity.

According to Stalmaster (1987; as cited by Jackman and Jenkins 2004), bald eagles lay one to three eggs asynchronously, two to four days apart. Eggs typically require 35 days of incubation and nestlings remain in the nest for about 12 weeks until they are fledged. After they are fully fledged, juvenile birds remain in the vicinity of the nest for about a month.

2.2.2 Foraging

Bald eagles are opportunistic feeders and will forage on fish, waterfowl, small mammals, and carrion. Generally, foraging occurs in the morning and evening hours. Hunting perches are used and have the following attributes: close proximity to potential prey; isolation from disturbance; good visibility of surrounding terrain; and accessibility for landing and departing (Stalmaster 1987, as cited by Caton et al. 1992). Caton et al. (1992) believed that the location of a hunting perch relative to shallow water was very important at deep water lakes because shallow water tends to concentrate fish and makes them more visible and accessible to bald eagles.

2.2.3 Wintering

Prior to the onset of winter many bald eagles will migrate from colder northern climates to warmer southern climates, or from higher elevations that experience 100 percent ice coverage of water bodies to lower elevations where water bodies remain ice free. During the winter, bald eagles spend the night in a roost. Paired adults will night roost in their nesting stand (Jackman and Jenkins 2004) and have been observed roosting in the tree containing their nest (Merced ID 2010). According to Buehler (2000; as cited by Jackman and Jenkins 2004) non-breeding migrant birds will roost communally.

2.3 Distribution

2.3.1 California

According to the CDFG (2010), bald eagles range throughout California and can be found at most lakes, reservoirs, rivers, and some rangelands and coastal wetlands. The largest concentration of wintering bald eagles may be found in the Klamath Basin, located on the border

of California and Oregon. A majority of breeding pairs are found in northern California, while a smaller number of pairs can be found in the central and southern Sierra Nevada mountains and foothills, the central coast range and inland southern California. Breeding pairs are also found on Santa Catalina Island.

2.3.2 Yuba-Bear Hydroelectric Project

In 2009 and 2010, NID conducted bald eagle surveys within a 1-mile area around each of NID's Yuba-Bear Hydroelectric Project reservoirs. The study included a review of historic bald eagle observations, as well as wintering and nesting surveys and is summarized below. Furthermore, the location of each observation by NID of bald eagle during the wintering and nesting surveys, and the historic bald eagle observations are presented on the maps located in Attachment A.

2.3.2.1 Historic Bald Eagle Observations

Licensee obtained existing and relevant information regarding known and potentially occurring bald eagles in the vicinity of the Project from CDFG's California Natural Diversity Database (CNDDB) as well as Geographic Information System (GIS) layers provided by TNF (TNF 2009) that mapped bald eagle midwinter surveys and incidental observations.

According to the CNDDB query report, one young-of-the-year juvenile was reported in the vicinity of the Yuba-Bear Hydroelectric Project in 1996 along the southeast end of the Milton Diversion Impoundment (CDFG 2009).

With respect to GIS layers provided by TNF, multiple bald eagle observations in the vicinity of the Yuba-Bear Hydroelectric Project were made prior to 2009. The TNF GIS layers recorded two historic nests at Milton Diversion Dam Impoundment, along with 34 observations of individuals in the vicinity of the Yuba-Bear Hydroelectric Project. Table 2.3-1 summarized the historical TNF data on bald eagle sightings for the Yuba-Bear Hydroelectric Project.

Table 2.3-1. Summary of historical TNF data on bald eagle sightings for Yuba-Bear Hydroelectric Project.

Location	# of individuals	Reproduction Status[1]	Date	Comments
Bear River Upstream of Chicago Park Powerhouse	1	Non-Reproducing	1/7/1989	Seen several times by Nevada Irrigation District personnel along the Bear River on 1/7 and 1/8.
Bowman Lake	1	Non-Reproducing	1/9/1990	1 adult seen during helicopter survey by Nevada Irrigation District.
Bowman Lake	2	Non-Reproducing	1/7/1988	Helicopter survey conducted by the Nevada Irrigation District, pair at lake most of winter.
Bowman Lake	2	Unknown	7/17/1992	Pair flying over lake.
Bowman Lake	1	Non-Reproducing	11/4/1993	---
Bowman Lake	2	Non-Reproducing	12/1/1977	---
Bowman Lake	2	Non-Reproducing	11/62001	---
Bowman Lake	1	Unknown	8/23/1989	Catching fish.
Bowman Lake	1	Non-Reproducing	12/3/1977	Perched in sang
Bowman Lake	2	Unknown	7/6/1989	---
Bowman Lake	1	Unknown	8/10/1989	---

Table 2.3-1. (continued)

Location	# of individuals	Reproduction Status[1]	Date	Comments
Canyon Creek south of Bowman Lake	7	Non-Reproducing	8/1/1971	Soaring over Celina Ridge.
Dutch Flat No. 2 Forebay	1	Non-Reproducing	1/12/1989	1 adult seen eating near Dutch Flat, by Nevada Irrigation District personnel.
Jackson Meadows Reservoir	1	Non-Reproducing	11/15/1976	---
Jackson Meadows Reservoir	1	Not Applicable	10/9/2003	Adult chasing a common merganser failed and perched for 1.5 hrs.
Jackson Meadows Reservoir	1	Unknown	8/21/2007	Juvenile bald eagle seen during Pass Creek NOGO visit, soaring over the creek.
Jackson Meadows Reservoir	1	Unknown	9/14/1989	---
Jackson Meadows Reservoir	1	Unknown	5/24/1989	---
Jackson Meadows Reservoir	1	Non-Reproducing	12/31979	---
Jackson Meadows Reservoir	1	Non-Reproducing	11/1/1987	---
Jackson Meadows Reservoir	1	Reproducing	7/18/2002	Adult fly-by.
Milton Diversion Impoundment	2	Unknown	8/2/2005	Pair soaring in the nest area. Unknown nesting.
Milton Diversion Impoundment	3	Reproducing	6/17/2006	---
Milton Diversion Impoundment	1	Reproducing	7/26/2002	---
Milton Diversion Impoundment	1	Reproducing	7/15/2003	Found adult and juvenile feathers as well as down on ground below nest, down seen in nest.
Milton Diversion Impoundment	1	Reproducing	7/1/2004	1 nestling in nest, chirping on approach, all chocolate brown, little to no mottling.
Milton Diversion Impoundment	2	Reproducing	5/14/2004	Pair agitated, 1 bird in nest, other flying around nest, bird left nest joined other in agitation flight.
Milton Diversion Impoundment	1	Unknown	7/18/1980	---
Milton Diversion Impoundment	1	Unknown	9/26/2005	Bald eagle flight feather found at base of duck box MR02.
MYR above Jackson Meadows	1	Unknown	7/24/1979	---
MYR above Jackson Meadows	1	Unknown	8/13/1986	Flying over stand toward Jackson Meadows Reservoir.
Rollins Reservoir	1	Non-Reproducing	1/12/1990	1 adult bald eagle seen during helicopter survey by Nevada Irrigation District.
Faucherie Lake	1	Unknown	8/8/1988	---
Sawmill Lake	1	Non-Reproducing	1/12/1989	1 of 2 eagles seen during helicopter survey by the Nevada Irrigation District.
Sawmill Lake	1	Non-Reproducing	1/12/1989	1 of 2 eagles seen on helicopter survey.

[1] Reproductive status designation is the determination of TNF.

KEY:
BAEA = bald eagle
OSPR = osprey
UTM = Universal Transverse Mercator, N denotes the projected distance of the position from the equator, while E denotes the projected distance of the position from the central meridian.
Sub1 = 1-year-old sub-adult bald eagle
SYR = South Yuba River
Activity/Observation = The observation made of the individual(s) or nest during helicopter surveys. Perched: the individual was found perched on an object; On nest: indicates the individual was found on a nest; Flying: individual was observed in flight; Nest: indicates the presence of a nest; Brooding posture: adult avian posture indicative of the presence of young.
Perch Type = Type of structure or tree used as a perch or in which nest was built.

2.3.2.2 Wintering Surveys

Ten bald eagle occurrences[3] were documented during the three wintering surveys: one adult at Jackson Meadows Reservoir and eight adults and one sub-adult at Rollins Reservoir. As part of the wintering surveys, NID located one winter night roost at Rollins Reservoir. The roost contained two adults who occupied a large ponderosa pine (*Pinus ponderosa*) within 300 feet of water. The winter roost tree was located on NID owned lands.

2.3.2.3 Nesting Surveys

During NID's 2009 nesting surveys at the 11 Yuba-Bear Hydroelectric Project reservoirs, no bald eagle nests were observed. However, during the final wintering survey on February 20, 2010, two adult bald eagles were observed perched in a large ponderosa pine that contained a nesting structure. The structure appeared relatively small and newly constructed and may be what is referred to as a winter "housekeeping" nest, where a migratory pair builds a nest while wintering at a particular reservoir, then leaves it in the spring when they migrate north. Conversely, this could be a new pair that is just now colonizing a breeding location. The fresh remains of multiple waterfowl were found beneath the nest trees, indicating habitual, but only recent use. As indicated above under historic observations, a bald eagle nest last reported in 1996 near Milton Diversion Dam Impoundment (Universal Transverse Mercator (UTM) coordinates 4377020N/708650E) was not present during the 2009 helicopter surveys, and the site is presumed unoccupied.

[3] An occurrence is the documentation of an individual bald eagle on a specific day and is not a reference to a species' population or number of resident individuals of a given area.

Page Left Blank

SECTION 3

RECOVERY, STATUS AND PROTECTION

3.1 Recovery and Status

3.1.1 Status

On March 11, 1967, the southern bald eagle (*Haliaeetus leucocephalus leucocephalus*) was listed as Endangered under the Endangered Species Act (ESA) of 1966[4], due to a population decline caused by dichlorodiphenyltrichloroethane (DDT) (32 FR 4001). On February 14, 1978, the USFWS ruled to delete the subspecific names for the southern and northern subspecies (*Haliaeetus leucocephalus alascanus*), which resulted in a single species *Haliaeetus leucocephalus* (43 FR 6230). The February 14, 1978 ruling also listed bald eagle as endangered in 43 of the 48 contiguous states. Bald eagle in the remaining five States (i.e., Washington, Oregon, Minnesota, Wisconsin and Michigan) was listed as threatened (43 FR 6230). On July 12, 1995, all bald eagles listed as endangered in the 43 states were reclassified as threatened, while the status of threatened remained in effect for the five other States (60 FR 36000). On August 8, 2007, the USFWS ruled to delist the bald eagle (72 FR 37346). In the ruling, USFWS indicated that a reduction or elimination of threats such as DDT, as well as habitat protection, led to an increase in breeding pairs from an estimated 487 in 1963 to approximately 9,789 in 2007 in the 48 contiguous States (72 FR 37346).

Within California, the bald eagle was listed under the California Endangered Species Act (CESA) as endangered on June 27, 1971, and remains listed as Endangered today. In addition, the bald eagle is classified as a "fully protected bird" under California law. Between 1990 and 2006, the number of breeding pairs in California had doubled from 93 to 200 (USFWS 2010).

3.1.2 Recovery Plans

The development of regional recovery plans by the USFWS aided in the delisting of bald eagle throughout its range. The state of California was included in the 7-state Pacific recovery area, for which the 1986 Pacific States Bald Eagle Recovery Plan (Recovery Plan) was developed. In order for the plans objective (delisting) to be reached, the USFWS (1986) identified four criteria that needed to be met: "1) a minimum of 800 nesting pairs in the Pacific recovery area; 2) average reproductive rate of 1.0 fledged young per pair, with an average success rate per occupied site of not less than 65 percent; 3) attainment of breeding population goals in at least 80 percent of the management zones with nesting potential; and 4) stable or increasing wintering populations." In order to meet these objectives, steps taken included habitat protection, augmentation of populations, increased law enforcement and public awareness, and continued research. To ensure that the species stays recovered, the USFWS (1986) states…"*Habitat occupied by bald eagles must continue to be protected and managed…Forest stands used by*

[4] Endangered Species Preservation Act of 1966 was amended in 1969 by the Endangered Species Conservation Act of December 5, 1969 (P.L. 91-135, 83 Stat. 275), which was repealed by the Endangered Species Act of 1973 (16 U.S.C. 1531-1544).

eagles must be managed to maintain the long-term availability of nest sites, roosts and foraging habitat…continued frequent monitoring of populations and productivity."

Appendix A of the Pacific States Bald Eagle Recovery Plan lists 47 Zones within the 7-state Pacific recovery area, one of the zones (Zone 28, Sierra-Nevada Mountains) includes Jackson Lake, which is part of the Yuba-Bear Hydroelectric Project. At the time of its development, the Recovery Plan indentified no territories at Jackson Lake, but indicated that one territory would be a goal (USFWS 1986). While the 2007 delisting of bald eagle is an indicator of success for the USFWS Pacific States Bald Eagle Recovery Plan, the absence of a nesting territory at Jackson Lake suggests that not all of the Recovery Plan's individual goals were met. However, since Jackson Lake is located in a portion of the Sierra Nevada where 100 percent ice coverage of water bodies is not uncommon, obtaining the recovery plans goal of one nesting territory at this location may be unlikely to occur.

3.2 Protection

Even though bald eagles are no longer protected under the ESA, they are still protected by various federal and state laws (specifically California). Federal protection of bald eagles occurs under the Migratory Bird Treaty Act of 1918 (MBTA) (16 U.S.C. 703-712; Ch. 128; July 13, 1918; 40 Stat 755) as amended; and the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668c) as amended. With respect to California laws, bald eagles are protected under the CESA (Fish & Game Code §2050, *et seq*), and are designated as a Fully Protected Species (FP) (Fish and Game Code §3511). Each of the above laws is summarized below:

3.2.1 MBTA

The MBTA provides protection to migratory birds and includes agreements between the U.S. and Great Britain (on behalf of Canada), Mexico, Japan and Soviet Union (now Russia) for the protection of such birds. In short, the MBTA, unless permitted by regulation, prohibits "*pursuit, hunt, capture, take, attempt to take, capture or kill, possess, offer for sale, sell, offer to purchase, purchase, deliver for shipment, ship, cause to be shipped, deliver for transportation, transport, cause to be transported, carry, or cause to be carried by any means whatever, receive for shipment, transportation of carriage, or export at any time, or in any manner, any migratory bird, included in the terms of the convention…for the protection of migratory birds…or any part, nest, or egg of such bird*" (16 U.S.C. 703).

3.2.2 Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act protects bald and golden eagles[5], except under specific conditions, from taking bald or golden eagles including their parts (feathers), nests or eggs. Take is defined as "pursue, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb." Furthermore "disturb" is defined as "to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, 1)

[5] Bald Eagle Protection Act of 1940 was amended in 1978 (P.L. 95-616 (92 Stat. 3114) to include golden eagles.

injury to an eagle, 2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or 3) nest abandonment, by substantially interfering with normal breeding, feeding or sheltering behavior." Violation of the Bald and Golden Eagle Protection Act can result in criminal penalties that can result in a fine of $100,000 for an individual ($200,000 for organizations, imprisonment for one year, or both, for a first offense. Penalties increase for additional offenses, and a second offense is a felony.

3.2.3 California Endangered Species Act

The CESA is modeled after the federal ESA. Like its federal counterpart, the CESA prohibits "take" except as otherwise provided in state law.

3.2.4 Fully Protected Species

Section 3511 of the Fish and Game Code covers birds designated by the CDFG as "Fully Protected." Unlike the CESA or the federal ESA, species designated as fully protected may not be taken or possessed at any time, and under no circumstances does this code or any other law authorize the issuance of permits or licenses to take any fully protected species except for "*necessary scientific research,... live capture and relocation of those species pursuant to a permit for the protection of livestock.*"

3.2.5 Forest Service and BLM Sensitive Species

The bald eagle is considered a Forest Service Sensitive species in Region 5 of the National Forest Service, and is considered a BLM Sensitive species. These agency's goals are to manage the species to ensure that it does not become threatened or endangered due to agency activities, to evaluate the potential impacts of projects to the species and address possible alternatives to mitigate or avoid impacts, and to coordinate with appropriate agencies to implement conservation assessments or other applicable plans.

Page Left Blank

SECTION 4

BALD EAGLE PROTECTION

4.1 Bald Eagle Protection Guidelines

On all lands within one mile of Jackson Meadows Reservoir, Milton Diversion Impoundment, French Lake, Faucherie Lake, Sawmill Lake, Jackson Lake, Bowman Reservoir, and Rollins Reservoir, NID shall, beginning the first full calendar year after license issuance, survey for bald eagle nests. Once all nests have been located, NID will establish a buffer zone around each nest to prevent disturbances to nesting birds that may result from O&M activities.

4.1.1 Nest Surveys

Bald eagle nest surveys will begin the first full calendar year after license issuance, and be repeated once every five years thereafter. Surveys will be performed in accordance with the *Bald Eagle Breeding Survey Instructions* (CDFG 1999) and the *Protocol for Evaluating Bald Eagle Habitat and Populations in California* (Jackman and Jenkins 2004). Survey methods include:

- Determine Occupancy of Territories and Early Incubation. Territories will be checked in early March, as weather conditions allow, in areas that have historical data available. Data collected at each site will consist of: 1) presence of adults; 2) courtship behavior; 3) evidence of nest repair or construction; 4) incubation; 5) observation of old nests. This survey will also document the presence of new nests. Surveys will be performed from a helicopter, GPS coordinates will be recorded, and photographs will be taken for all nests observed.

- Confirm Occupancy of Territories and Presence of Eggs/Nestlings. Surveys will be conducted in late April or early May to determine whether the breeding pair(s) surveyed in March is still tending the nest (e.g., incubating eggs or tending nestlings). The number of eggs/nestlings, bird behavior, and any other relevant observations will be recorded. These surveys will be conducted in the same manner as the initial surveys. However, in order to reduce potential disturbances to nesting birds ground based observation points that overlook previously documented nests may be used instead of helicopters or boats.

- Determine Nest Success. Surveys will be conducted in mid June to determine how many nestlings are approaching fledgling age. These surveys will be conducted in the same manner as the other nesting surveys. The CDFG California Bald Eagle Nesting Territory Survey Form (Attachment B) will be utilized during all nesting surveys.

4.1.2 Establish Nest Buffers

Upon completion of the first nest survey (first visit after license issuance occurs in March), and for all nests identified after the initial nest survey, NID will establish a buffer around all

documented bald eagle nests. The buffer will encompass all federal and NID-owned land (and water) that fall within a 1,000 ft radius of a documented nest.

Beginning January 1 of the second year after license issuance and through August 31 of each year thereafter, NID will institute a LOP for all NID Project-related activities within the buffer areas. It is recognized that NID cannot control the activities of others (i.e., does not have enforcement authority) within the buffer areas during the LOP period.

Nest buffers may be removed, adjusted or new buffers will be established if subsequent nesting surveys demonstrate that a nesting territory is no longer occupied or new nests are identified. Additionally, any information provided to NID by Forest Service, BLM, USFWS, or CDFG or regarding previously unidentified or existing nests will be used to inform the establishment of nest buffers. Removal of nest buffers will be done in consultation with the appropriate agency (depending on jurisdiction), and may include the Forest Service, BLM, USFWS, and CDFG.

4.1.3 Mitigation Against Disturbances

Non-routine Project construction activities (e.g., building new roads, dams, powerhouses, etc) that require pneumatic or heavy equipment performed by NID and its contractors will not occur within the buffer while the LOP is in effect. If NID, in consultation with CDFG, USFWS, Forest Service and BLM determines that the nest corresponding to the buffer area is unoccupied, NID may request that the LOP be waived for that particular year.

Work exempt from the restrictions imposed by the LOP may include emergency work that includes, but is not limited to canal breach, dam failure, employee injury, powerhouse goes off-line, repairs to facilities cause by storms, fire, etc. However, NID will notify the appropriate agency (depending on jurisdiction) within 48 hours of commencement of emergency work. Other work exempt from the restrictions imposed by the LOP includes routine Project O&M. Routine O&M includes, but is not limited to, use of snow-cats, helicopters and vehicles for access; facilities inspections; cleaning of trash racks; implementation of vegetation management practices as prescribed by the Yuba-Bear Hydroelectric Project Vegetation Management Plan; maintaining stream flows; by NID and its contractors.

If a tree within a nest stand is identified as a "Hazard Tree," and that tree is within one of the Project recreation areas its removal will occur outside of the LOP. If the nest tree is identified as a "Hazard Tree," and is within one of the Project recreation areas its removal will be done in consultation with the appropriate agency (depending on jurisdiction), and may include the Forest Service, BLM, USFWS, and CDFG.

While ideal, it is not recommended that buoys and signage be used to delineate the buffers in order to restrict recreation activities in the vicinity of the nests, due to the potential of publicizing secluded nesting locations. In lieu of delineating buffers with buoys and signage, NID will, within 1 year of license issuance, post public information notices at message boards located within campgrounds and at boat launch facilities. These notices will be posted from January 1 through August 1 at lower elevation recreation facilities that remain open year round. For those recreation facilities located at higher elevations that are closed during winter months, the notices

will be posted upon opening of the recreation season. The notices will provide the public with the following information:

- Public notification that bald eagles nest in the vicinity of the Yuba-Bear Hydroelectric Project.
- A brief statement summarizing legal protection of bald eagles.
- Descriptions of what recreationists can do to help protect nesting bald eagles (e.g., stay at least 1,000 ft away from nests, observe birds from a distance, etc.).
- Contact information for local avian rescue centers to report injured birds.

4.1.4 Annual Employee Awareness Training

Each year during the term of the license, NID shall, as part of its Annual Employee Awareness training (Proposed Measure YB-GEN2) review mitigation measures (e.g. nest buffers and LOP) as they apply to planned O&M activities for the calendar year.

Page Left Blank

SECTION 5

REPORTING, CONSULTATION AND PLAN REVIEW

Over the term of the new license, additional consultation may occur, as necessary to ensure that the goals and objectives of the Plan are being met and the proposed measures are implemented. Consultation activities that will be conducted during the new license term will include an Annual Coordination Meeting and periodic reporting of bald eagle management as described below.

5.1 Annual Consultation Meeting

Each year during the term of the license, NID shall arrange to meet with the Forest Service, BLM, USFWS, and CDFG, as appropriate, for an annual meeting to discuss bald eagle protection within the FERC Project Boundary. The date of the meeting will be mutually agreed to by NID, the Forest Service, BLM, USFWS, and the CDFG but in general will be held within the first 90 days of each calendar year.

At the Annual Consultation Meeting, NID shall review with the Forest Service, BLM, USFWS, and CDFG the results of the most recent nesting surveys, and any activities planned for the calendar year that may disturb nesting bald eagles for the calendar year, identify any revisions needed, and make any adjustments to the Plan or schedule, as deemed appropriate. NID will file a record of the meeting with FERC.

5.2 Reporting

By December 31 of the year in which nesting surveys are performed, Licensee will provide to the Forest Service, BLM, USFWS, and CDFG a nesting survey report. The nesting survey report will include a description of the survey methods, the results of those surveys, and if nesting is documented a description of the proposed buffers. All bald eagle sightings will also be reported to CDFG for inclusion into the California Natural Diversity Database.

By December 31 of each year, Licensee will provide to the Forest Service, BLM, USFWS, and CDFG an annual report that includes three components. The first component is a brief summary of results from the most recent five year survey. The second component is the inclusion of additional, relevant information regarding bald eagle nesting in the Project Area that was provided by the Forest Service, BLM, USFWS, and CDFG to NID. This information is intended to inform potential changes to existing buffers and LOPs for the remainder of the (current) five year nesting survey cycle. The third component of the annual report will include a summary of protection measures that were applied to O&M activities. The third component will also contain a description of emergency activities undertaken within a nest buffer and during the LOP.

In order to reduce the number of reports submitted to the Forest Service, BLM, USFWS, and CDFG during years in which nesting surveys are performed, Licensee will combine the annual report with the nesting survey report.

5.3 Plan Revisions

NID, in consultation with the Forest Service, BLM, and CDFG, will review, update, and/or revise the Plan, if significant changes in Project or recreation management occur. Changes may also be implemented if monitoring feedback indicates that resource objectives are not being met.

Any updates to the Plan would be prepared in coordination and consultation with the Forest Service, BLM, USFWS, and CDFG. Sixty days would be allowed for the Forest Service, BLM, USFWS, and CDFG to comment and make recommendations before NID files the updated plan with FERC. NID would include all relevant documentation of coordination/consultation with the updated Plan filed with FERC. If NID does not adopt a particular recommendation, the filing would include the reasons for not doing so, based on project-specific information. NID will implement the Plan as approved by the Commission.

SECTION 6

REFERENCES CITED

California Department of Fish and Game (CDFG). 1999. Bald Eagle Breeding Survey Instructions. November 1999. Sacramento, CA.

_____. 2009. Biogeographic Data Branch. California Natural Diversity Database (CNDDB).

_____. 2010. Bald eagles in California. Available online: http://www.dfg.ca.gov/wildlife/nongame/t_e_spp/bald_eagle/index.html. Accessed: June 9, 2011. California Department of Fish and Game, Nongame Wildlife Program.

Caton, E. L., B. R. McClelland, and D. A. Patterson. 1992. Characteristic of foraging perches used by breeding bald eagles in Montana. Short Communications. Wilson Bull., 104(1), 1992 pp. 136-142.

Jackman, R. E., and J. M. Jenkins. 2004. Protocol for Evaluating Bald Eagle Habitat and Populations in California. Prepared for U.S. Fish and Wildlife Service. Sacramento, CA.

Merced Irrigation District (Merced ID). 2010. Technical Memorandum 7-7 CESA-listed wildlife – bald eagle. Merced River Hydroelectric Project FERC Project No. 2179.

NatureServe. 2010. NatureServe Explorer: An online encyclopedia of life [web application. Version 7.1. NatureServe, Arlington, Virginia. Available http://www.natureserve.org/explorer (Accessed June 9, 2011).

Nevada Irrigation District (NID) and Pacific Gas and Electric Company (PG&E). 2010. Technical Memorandum 7-5 – CESA-Listed Wildlife – Bald Eagle. Prepared for the Relicensings of NID's Yuba-Bear Hydroelectric Project (FERC Project No. 2266), PG&E's Drum-Spaulding Project (FERC Project No. 2310), and PG&E's Rollins Transmission Line Project (FERC Project No. 2784).

United States Department of Agriculture Forest Service (USFS) - Tahoe National Forest. June 18, 2009. "BaldEagleNest," "BaldEagleSampleArea" TNF_Wildlife.gdb. ESRI File Geodatabase. Accessed Sept 24, 2009.

United States Department of the Interior, Bureau of Land Management (BLM). 2008. Sierra Resource Management Plan and Final Environmental Impact Statement. Folsom Field Office. Folsom, California.

United States Department of the Interior, U.S. Fish and Wildlife Service (USFWS). 1986. Recovery plan for the Pacific bald eagle. U.S. Fish and Wildlife Service, Portland, Oregon. 160 pp.

_____. 2010. Bald Eagle Population Size. Available online: http://www.fws.gov/midwest/eagle/population/index.html>.

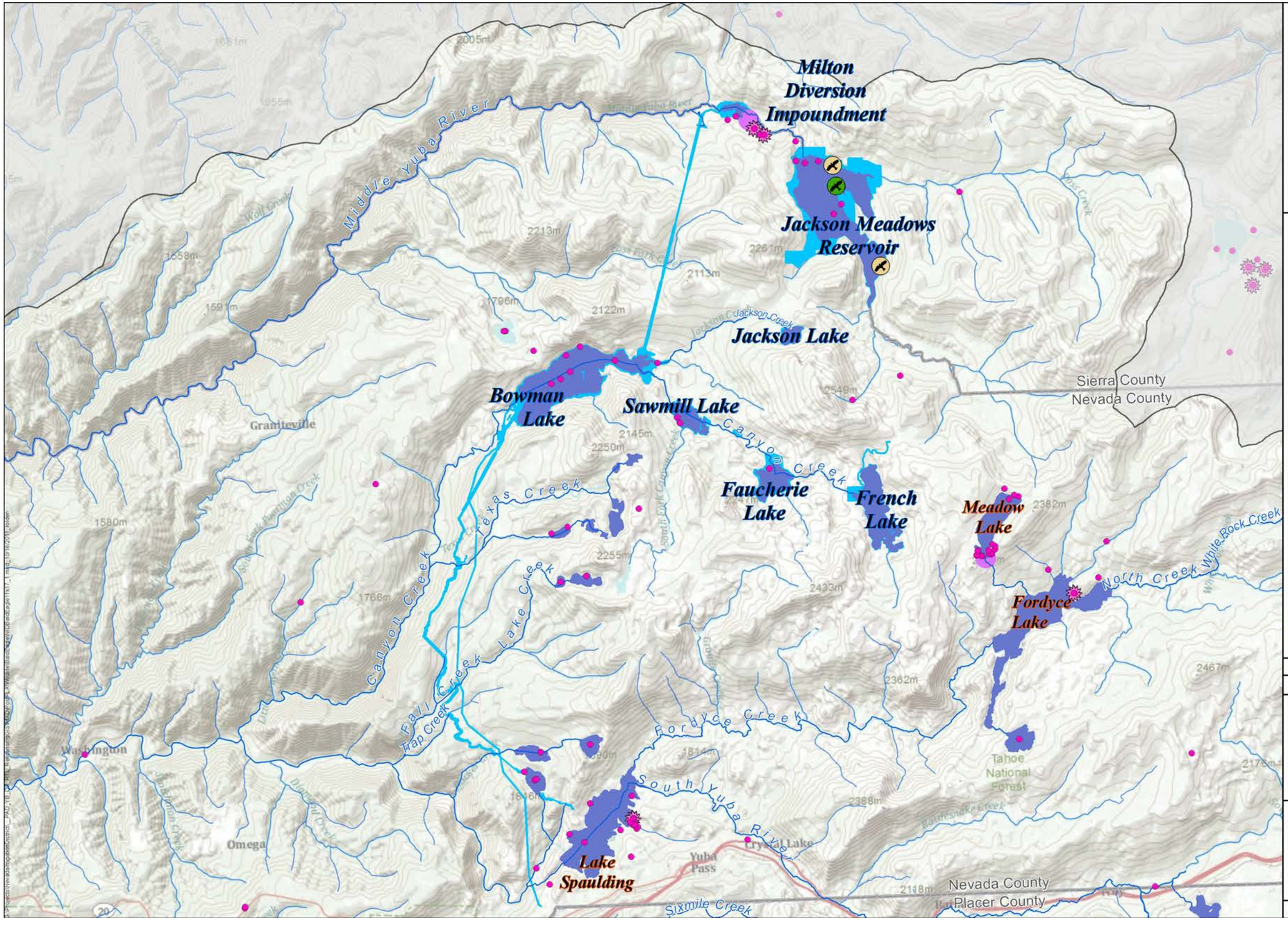
Page Left Blank

Yuba-Bear Hydroelectric Project
FERC Project No. 2266-096

Bald Eagle Management Plan

Attachment A

Figures Representing Observations of Bald Eagles within the Project Area



Y-B or D-S Project Reservoir

FERC 2266 Boundary (NID's Yuba/Bear Project)

Summer (2009) Nesting Survey Observation

Bald Eagle, Adult

Winter Survey (2009-2010) Observation

Bald Eagle, Adult

Pre-2009 Observations in Project Vicinity

Historic Bald Eagle Observation

Historic Bald Eagle Nest

CNDDB Bald Eagle Record

Project Reservoirs

(Reservoir Name) NID

(Reservoir Name) PG&E

N

0 0.5 1 2

Miles

Map 1 of 2

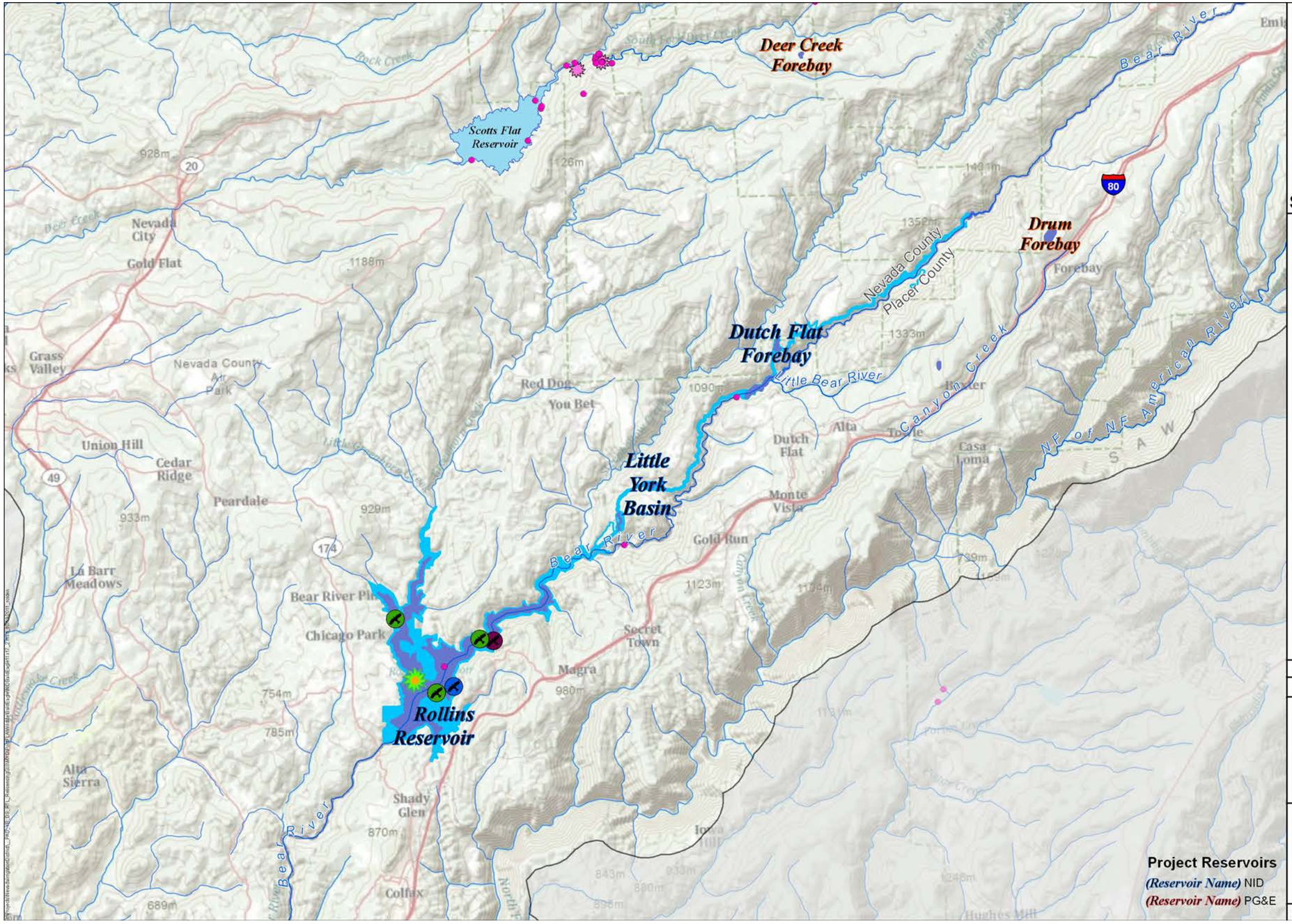
FERC PROJECT NO. 2266

NID's 2009 and 2010 Survey Results and Historic Records of Bald Eagle in the Project Vicinity

Yuba-Bear Hydroelectric Project

Data Sources: Map information was compiled from the best available sources.
No Warranty is made for its accuracy or completeness.
Survey Data collected by PG&E; Historical Data from Tahoe NF
Topographic Base Map from ESRI ArcGIS Online
Hydrography from National Hydrography Dataset
Project Features from PG&E/NID
Data is UTM meters, NAD83, zone 10

Map prepared by: HDR|DTA



Y-B or D-S Project Reservoir
FERC 2266 Boundary (NID's Yuba/Bear Project)

Winter Survey (2009-2010) Observation

- Bald Eagle Nest, Occupied
- Bald Eagle, Adult
- Bald Eagle, Adult, Night Roost
- Bald Eagle, Sub-adult

Pre-2009 Observation in Project Vicinity

- Historic Bald Eagle Observation
- Historic Bald Eagle Nest

N

0 0.5 1 2
Miles

Map 2 of 2

FERC PROJECT NO. 2266

NID's 2009 and 2010 Survey Results and Historic Records of Bald Eagle in the Project Vicinity

Yuba-Bear Hydroelectric Project

Data Sources: Map information was compiled from the best available sources.
No Warranty is made for its accuracy or completeness.
Survey Data collected by PG&E; Historical Data from Tahoe NF
Topographic Base Map from ESRI ArcGIS Online
Hydrography from National Hydrography Dataset
Project Features from PG&E/NID
Data is UTM meters, NAD83, zone 10

Map prepared by: HDR|DTA

Yuba-Bear Hydroelectric Project
FERC Project No. 2266-096

Bald Eagle Management Plan

Attachment B

Nesting Survey Data Sheet

NEVADA IRRIGATION DISTRICT
YUBA-BEAR HYDROELECTRIC PROJECT (FERC No. 2266)
BALD EAGLE NESTING SURVEY DATA SHEET

Date: _____ **Visit ____ of 3** **Pg ___ of ___**

Reservoir: _____

Observers: _____ **Map No.**: _____

Time Start: _____ **Time End**: _____

Weather (circle one): Clear / Partly Cloudy / Overcast / Rain / Snow

Wind (circle one): Calm / Slight Breeze / Breezy / Windy

Temperature (^{o}C):_____

QA/QC:

- **Data Entered by: _____ on _____**
- **Checked by: _____ on _____**

Observation	1	2	3	4	5	6	7	8
General Location								
UTM E								
UTM N								
Distance from H_2O(m)								
Habitat								
Nest Tree Species								
Active? (Y/N)								
Adult(s) Present? (Y/N)								
Juvenile(s) Present in nest? (Y/N)								

Observation	9	10	11	12	13	14	15	16
General Location								
UTM E								
UTM N								
Distance from H_2O(m)								
Habitat								
Nest Tree Species								
Active? (Y/N)								
Individual(s) Present? (Y/N)								
Juvenile(s) Present in nest? (Y/N)								

COMMENTS:

Bald Eagle Nesting Data Sheet Page _____of_____ Date: _____ Location: _____

AMENDED APPENDIX E5

NID's Information Related to Proposed Measures – Yuba-Bear Hydroelectric Project

In conformance with 18 CFR § 5.27, the Nevada Irrigation District (NID or Licensee) files with the Federal Energy Regulatory Commission (FERC or Commission) this Amended Appendix E5 as part of NID's Amended Application (Amended Application) for NID's Yuba-Bear Hydroelectric Project, Project 2266 (Project).

This Amended Appendix E5 fully replaces Appendix E5, *NID's Information Related to Proposed Measures - Yuba-Bear Hydroelectric Project*, to Exhibit E, *Environmental Report*, in NID's Exhibit E of NID's April 15, 2011 Application for License for a Major Project - Existing Dam (Final License Application, or FLA) for the Project.

Appendix E5 includes the following information required pursuant to 18 CFR § 5.18(b)(5)(ii)(2):

> (A) Functional design drawings of any fish passage and collection facilities or any other facilities necessary for implementation of environmental measures, indicating whether the facilities depicted are existing or proposed (these drawings must conform to the specifications of § 4.39 of this chapter regarding dimensions of full-sized prints, scale, and legibility);
>
> (B) A description of operation and maintenance procedures for any existing or proposed measures or facilities;
>
> (C) An implementation or construction schedule for any proposed measures or facilities, showing the intervals following issuance of a license when implementation of the measures or construction of the facilities would be commenced and completed;
>
> (D) An estimate of the costs of construction, operation, and maintenance, of any proposed facilities, and of implementation of any proposed environmental measures.
>
> (E) A map or drawing that conforms to the size, scale, and legibility requirements of § 4.39 of this chapter showing by the use of shading, cross-hatching, or other symbols the identity and location of any measures or facilities, and indicating whether each measure or facility is existing or proposed (the map or drawings in this exhibit may be consolidated).

E5.1 Functional Design Drawings

Implementation of NID's proposed environmental measures does not require any fish passage and collection facilities or any other facilities necessary to implement environmental measures. NID proposes five new minimum streamflow compliance gages, in Texas, Fall, Clear, Trap and Rucker creeks immediately below NID's Bowman-Spaulding Conduit. These gages are envisioned to be basic concrete structures with a USGS weir plate installed for flow measurement purposes.

Therefore, functional design drawings are not included.

E5.2 Operation and Maintenance Procedures

NID has not developed operation and maintenance procedures for its existing or proposed measures or facilities related to this FLA. Therefore, a description of operation and maintenance procedures is not included.

E5.3 Implementation and Construction Schedule for Proposed Measures

Table E5.3-1 provides a schedule for the implementation of NID's proposed Yuba-Bear Hydroelectric Project measures.

Table E5.3-1. Schedule for implementation of NID's proposed Yuba-Bear Hydroelectric Project environmental measures.

NID's Proposed Measure		Activity	Implementation Schedule
Designation	**Description**		
GENERAL			
YB-GEN1	Annual Consultation with Forest Service and BLM	Consult (meet) once with Forest Service and BLM	Annually (usually within 60 days of the beginning of the recreation season) beginning in first full calendar year after license issuance
		Provide to Forest Service and BLM previous years flow records and other information	No later than 10 days prior to meeting
		Provide to Forest Service and BLM, as appropriate (if the event pertains to NFS or BLM land), filings made with FERC regarding Project safety and non-compliance events	Concurrently with submittal to FERC
		File meeting record if so requested by FERC	Upon FERC's request within 60 days after annual meeting
YB-GEN2	Annual Employee Training	Train employees once each year	Annually beginning in first full calendar year after license issuance
		If disturbance to "sensitive area" on NFS or BLM land is unavoidable, consult with Forest Service or BLM as appropriate	When NID determines disturbance to "sensitive area" is unavoidable

Table E5.3-1. (continued)

NID's Proposed Measure		Activity	Implementation Schedule
Designation	**Description**		
GENERAL (continued)			
YB-GEN3	Annual Review of Special-Status Species Lists and Assessment of New Species on Federal Land	Review special-status species lists with Forest Service and BLM (once)	Annually beginning in first full calendar year after license issuance
		Develop a study plan if species added to special-status list and has potential to be affected by Project, and file plan with FERC after review by Forest Service and BLM	When Forest Service or BLM, as appropriate, determine new species has potential to be affected by Project
		Conduct study and file report with proposed measures, if appropriate, with FERC	When study complete
		Implement PM&E measures	When ordered by FERC
YB-GEN4	Consultation Regarding New Ground Disturbing Activities on Federal Land	Consult with Forest Service or BLM, as appropriate, if new ground disturbing activities planned	If NID proposes ground disturbing activities on federal land
		Enter into agreement to fund Forest Service or BLM time, as appropriate, regarding activities related to new ground disturbing activities	Upon Forest Service's or BLM's request
YB-GEN5	Consultation Regarding New Facilities on Federal Land	Submit biological evaluation to Forest Service or BLM, as appropriate	Before taking action to construct a new Project facility on federal land that might affect special-status species or their habitat
YB-GEN6	Development and Implementation of Coordinated Operations Plan for Yuba-Bear Hydroelectric Project and Drum-Spaulding Project	Consult with PG&E and file Coordinated Operations Plan with FERC	Within 1 year after issuance of anew license for the Yuba-Bear Hydroelectric Project or Drum-Spaulding Project, whichever is later
		Implement Coordinated Operation Plan	Upon approval by FERC
YB-GEN7	Pesticide and Herbicide Use Restrictions on Federal Land	Do not use pesticides or herbicides on federal land without prior approval from Forest Service or BLM, as appropriate	Within 90 days after license issuance
GEOLOGY AND SOILS			
YB-G&S1	Development and Implementation of Rollins Upgrade Construction Erosion Control and Restoration Plan	Develop plan in consultation with appropriate agencies and file plan, including evidence of consultation, with FERC	No later than 90 days in advance of initiating construction on Rollins Upgrade
YB-G&S2	Development and Implementation of Recreation Facilities Construction Erosion Control and Restoration Plan	Develop plan in consultation with appropriate agencies and file plan, including evidence of consultation, with FERC	No later than 90 days in advance of initiating construction on recreation facilities
YB-G&S3	Implement Clear and Trap Creeks Stabilization Plans	Implement plan included in application and start construction	Within 3 years of license issuance
		Complete construction	Within 5 years of license issuance
WATER RESOURCES			
YB-WR1	Development and Implementation of Rollins Upgrade Construction Hazardous Material Spill Prevention, Control and Countermeasures Plan	Develop plan in consultation with appropriate agencies and file plan, including evidence of consultation, with FERC	No later than 90 days in advance of initiating construction on Rollins Upgrade
YB-WR2	Development and Implementation of Recreation Facilities Construction Hazardous Material Spill Prevention, Control and Countermeasures Plan	Develop plan in consultation with appropriate agencies and file plan, including evidence of consultation, with FERC	No later than 90 days in advance of initiating construction on recreation facilities

Table E5.3-1. (continued)

NID's Proposed Measure		Activity	Implementation Schedule
Designation	**Description**		
AQUATIC RESOURCES			
YB-AQR1	Streamflows	Part 1. Water Year Types. Determine water year types and use them in implementing measures in license	Within 90 days after license issuance and then in each of the months of February, March April, May and October
		Part 2. Minimum Streamflows. If no facility modification is required to releases flows, comply with Minimum Streamflows schedule	Within 90 days after license issuance
		Part 2. Minimum Streamflows. If facility modification is required to releases flows, comply with Minimum Streamflows schedule	Within 90 days after license issuance make good faith effort to provide flows within capabilities of existing facilities
			File permits for facility modification within 2 year after license issuance
			Complete facility modification within 2 years of obtaining permits and begin releasing Minimum Streamflows
		Part 2. Minimum Streamflows. Notify FERC, Forest Service, BLM, CDFG and SWRCB if License temporarily modifies Minimum Streamflows	As soon as reasonably possible but no later than next business day after modification
		Part 3. Bowman-Spaulding Diversion Conduit Outages and Drum-Spaulding Project's Drum Canal Outages. Provide minimum streamflow during first 30 days of canal outage.	Upon license issuance and for canal outages that last longer than 30 days
		Part 3. Bowman-Spaulding Diversion Conduit Outages and Drum-Spaulding Project's Drum Canal Outages. Consult with Forest Service, BLM, CDFG and SWRCB regarding minimum streamflows	Upon license issuance and for first 30 days of canal outage
		Part 3. Bowman-Spaulding Diversion Conduit Outages and Drum-Spaulding Project's Drum Canal Outages. Notify Forest Service, BLM, CDFG and SWRCB regarding canal outages	Upon license issuance, at Annual Meeting (YB-GEN1) notify agencies of planned and non-routine planned outages for upcoming year and provide agencies as much advance notice as possible if outage period changes; and provide notice to agencies of emergency outages by end of next business day
		Part 4. Milton Diversion Dam, Bowman-Spaulding Diversion Dam and Rollins Dam Overwintering Minimum Streamflow Adjustments. Adjust Minimum Streamflow at Milton Diversion Dam based on precipitation at Bowman Lake	In November, December and January of Wet WYs
		Part 4. Milton Diversion Dam, Bowman-Spaulding Diversion Dam and Rollins Dam Overwintering Minimum Streamflow Adjustments. Adjust Minimum Streamflow at Bowman-Spaulding Diversion Dam based on precipitation at Bowman Lake	In January of Wet WYs
		Part 5. Wilson Creek Diversion Dam Flow Setting. Check outlet works at Wilson Creek Diversion Dam once each week and re-set to make Minimum Streamflows	Within 90 days of license issuance, during Non-Winter Period (i.e., from time NID has safe access in spring until November 1

Table E5.3-1. (continued)

NID's Proposed Measure		Activity	Implementation Schedule
Designation	**Description**		
AQUATIC RESOURCES (continued)			
YB-AQR1 (continued)	Streamflows (continued)	Part 5. Wilson Creek Diversion Dam Flow Setting. Set outlet works at Wilson Creek Diversion Dam by November 1 (no other visits to outlet works required during Winter Period)	Within 90 days of license issuance, during Winter Period (i.e., beginning November 1)
		Part 6. Chicago Park Powerhouse Motoring. Make good faith effort to motor Chicago Park Powerhouse when unit is not generating; if unit shutdown, make good faith effort to mort powerhouse until flows from Dutch Flat Afterbay reach powerhouse	Each year from May 1 through September 15
		Part 7. Milton Diversion Dam, Bowman-Spaulding Diversion Dam and Dutch Flat Diversion Dam Spill Cessation Schedules. Implement Milton Diversion Dam spill cessation schedule	Within 90 days of license issuance, each year after May 1
		Part 7. Milton Diversion Dam, Bowman-Spaulding Diversion Dam and Dutch Flat Diversion Dam Spill Cessation Schedules. Implement Bowman-Spaulding Diversion Dam spill cessation schedule	Within 90 days of license issuance, each year after April 1
		Part 7. Milton Diversion Dam, Bowman-Spaulding Diversion Dam and Dutch Flat Diversion Dam Spill Cessation Schedules. Make good faith effort to not make pulse flow releases from Milton Diversion Dam and Bowman-Spaulding Diversion Dam	Within 90 days of license issuance, each year for the period form when spill cessation schedule ends to September 30
		Part 7. Milton Diversion Dam, Bowman-Spaulding Diversion Dam and Dutch Flat Diversion Dam Spill Cessation Schedules. Implement Dutch Flat Afterbay Dam spill cessation schedule	Within 90 days of license issuance, each year after NID-caused spill
		Part 8. Rollins Reservoir Elevation Control. Make good faith effort to manage flows in Bear River below Bowman Dam so that inflow equals outflow within top 2-3 fete of reservoir	When Rollins Reservoir is within top 1-3 feet
YB-AQR2	Bowman Lake Fish Stocking	Fund CDFG's fish stocking in Bowman Lake	Annually beginning in the first full calendar year after license issuance and within 60 days of CDFG providing to Licensee a statement of cost
YB-AQR2	Rollins Reservoir Fish Stocking	Pay to CDFG the stocking costs of up to 10,000 catchable rainbow trout, 10,000 catchable brown trout and 25,000 kokanee fry in Rollins Reservoir. Stocking to be performed by CDFG.	Beginning the first full calendar year after license issuance
YB-AQR4	Steephollow Creek Foothill-Yellow Legged Frog Monitoring	Monitor FYLF populations in Steephollow Creek to establish baseline	In first three full calendar year after license issuance
		Monitor FYLF populations in Steephollow Creek after spill event	Second and third full calendar years after a spill event of more than 100 cfs between April 1 and June 15 or more than 300 cfs from June 16 and September 15
		Consult with BLM, CDFG and SWRCB regarding need for third year of monitoring after spill event	When first 2 years of spill event monitoring available
		Provide spill event monitoring report to BLM, CDFG and SWRCB	By December 31 of years in which spill event monitoring occurs

Table E5.3-1. (continued)

NID's Proposed Measure		Activity	Implementation Schedule
Designation	**Description**		
AQUATIC RESOURCES (continued)			
YB-AQR5	Implement Canal Fish Rescue Plan	Implement Canal Fish Rescue Plan	Prior to outages of Bowman-Spaulding, Dutch Flat and Chicago Park conduits
YB-AQR6	Milton-Bowman Conduit Fish Entrainment	Monitor fish entrainment into Milton-Bowman Conduit	From April 15 to August 15 in first full calendar year after license issuance
		Provide draft entrainment monitoring report to Forest Service, CDFG and SWRCB	By December 31 of years in which spill event monitoring occurs
		Provide final entrainment monitoring report, including evidence of consultation, to FERC	Following agency review and comment of report
YB-AQR7	Rollins Dam Large Woody Material Management	Relocate large woody material in Rollins Reservoir that has accumulated in Rollins Dam spillway upstream of the spillway log boom to downstream of the log boom.	In October of each year
YB-AQR8	Fall Creek Diversion Dam Minimum Streamflows	If no facility modification is required to releases flows, comply with Minimum Streamflows schedule	Within 90 days after license issuance
		If facility modification is required to releases flows, comply with Minimum Streamflows schedule	Within 90 days after license issuance make good faith effort to provide flows within capabilities of existing facilities
			File permits for facility modification within 2 year after license issuance
			Complete facility modification within 2 years of obtaining permits and begin releasing Minimum Streamflows
		Notify FERC, Forest Service, BLM, CDFG and SWRCB if License temporarily modifies Minimum Streamflows	As soon as reasonably possible but no later than next business day after modification
		Provide minimum streamflow during first 30 days of Bowman-Spaulding Conduit outage.	Upon license issuance and for canal outages that last longer than 30 days
		Consult with Forest Service, CDFG and SWRCB regarding minimum streamflows if Bowman-Spaulding Conduit outage is longer than 30 days	Upon license issuance and for first 30 days of canal outage
		Notify Forest Service, BLM, CDFG and SWRCB regarding Bowman-Spaulding Conduit outages	Upon license issuance, at Annual Meeting (YB-GEN1) notify agencies of planned and non-routine planned outages for upcoming year and provide agencies as much advance notice as possible if outage period changes; and provide notice to agencies of emergency outages by end of next business day
YB-AQR9	Minimum Streamflows Compliance Measurement	Monitor compliance with Minimum Streamflows if no facility modification is required	Within 90 days after license issuance
		If facility modification is required to monitor compliance with Minimum Streamflows	Within 90 days after license issuance make good faith effort to provide flows within capabilities of existing facilities
			File permits for facility modification within 2 year after license issuance
			Complete facility modification within 2 years of obtaining permits and begin monitoring compliance with Minimum Streamflows

Table E5.3-1. (continued)

NID's Proposed Measure		Activity	Implementation Schedule
Designation	**Description**		
TERRESTRIAL RESOURCES			
YB-TR1	Implement Non-Native Plant Management Plan	Implement plan approved by FERC	Within 1 year after FERC approval of plan (See plan for detailed activities and schedule)
YB-TR2	Implement Vegetation Management Plan on Federal Land	Implement plan approved by FERC	Within 1 year after FERC approval of plan (See plan for detailed activities and schedule)
YB-TR3	Bowman-Spaulding Transmission Line Avian Protection	Record incidental observations of bird collisions/electrocutions along Bowman-Spaulding Transmission Line	Begin within the first full calendar year after license issuance.
		Provide record of incidental observations of bird collisions/electrocutions along Bowman-Spaulding Transmission Line to Forest Service, CDFG and SWRCB	At least 60 days prior to Annual Meeting (Measure YB-AQR1)
		Consult with Forest Service, CDFG and SWRCB regarding replacement of poles/structures along Bowman-Spaulding Transmission Line	When record incidental observations of bird collisions/electrocutions illustrate a problem
		Replace poles and structures in conformance with APLIC and USFWS 2005	When replacing poles/structures along Bowman-Spaulding Transmission Line
YB-TR4	Consult When Replacing Canal Wildlife Escape Facilities and Wildlife Crossing Facilities	Consult with CDFG (and Forest Service and BLM, if appropriate)	Prior to replacing canal wildlife escapement and/or crossing facilities
YB-TR5	Monitor Animal Losses in Project Canals	Record animal loses in Project canals	Beginning first full calendar year after license issuance
		Provide information regarding animal loss in canals to CDFG and Forest Service (if canal on NFS land)	Annually no later than 90 days prior to annual consultation meeting described in Measure YB-GEN1
YB-TR6	Bat Management	Document all known bat roosts within Project buildings	In the first full calendar year after license issuance
		Provide information regarding bat roosts to CDFG (and to Forest Service and BLM, if appropriate)	No later than 90 days prior to consultation meeting described in Measure YB-GEN1 following collection of the information
		Attempt, where feasible, to place humane exclusion devices to prevent occupation of the structure by bats	November through February following the consultation meeting
		Inspect bat exclusion devices	Annually after devices installed
		Reevaluate Project facilities for bat roosting	Every third year after first initial exclusion devices installed
YB-TR7	Implement Bald Eagle Management Plan[3]	Implement plan approved by FERC	After FERC approval of plan (See plan for detailed activities and schedule)
RECREATION RESOURCES			
YB-RR1	Implement Recreation Facilities Plan	Implement plan approved by FERC	After FERC approval of plan (See plan for detailed activities and schedule)
YB-RR2	Provide Recreation Flow Information	Make flow information available on Internet	Annually beginning as soon as reasonably practical after license issuance, but no later than 1 year after license issuance
YB-RR3	French Dam Supplemental Flows for Whitewater Boating	Provide whitewater boating flows in Canyon Creek below French Dam	Annually beginning in first full calendar year after license issuance
YB-RR4	Milton Diversion Dam Supplemental Flows for Whitewater Boating	Provide whitewater boating flows in Middle Yuba River below Milton Diversion Dam	Annually beginning in first full calendar year after license issuance if flow at USGS gage 11408550 is 300 cfs or greater after May 1
YB-RR5	Bowman-Spaulding Diversion Dam Supplemental Flows for Whitewater Boating	Provide whitewater boating flows in Canyon Creek below Bowman-Spaulding Diversion Dam	Annually beginning in first full calendar year after license issuance if flow at USGS gage 11416500 is 275 cfs

Table E5.3-1. (continued)

NID's Proposed Measure		Activity	Implementation Schedule
Designation	**Description**		
LAND USE			
YB-LU1	Implement Transportation Management Plan	Implement plan approved by FERC	Within 1 year after license issuance
		Initiate road maintenance measures	Within 1 year of License issuance and FERC approval of the Plan.
		Initiate road rehabilitation measures	Within 5 years of License issuance and FERC approval of the Plan.
YB-LU2	Fire Prevention and Response Plan on Federal Land[2]	Implement plan approved by FERC	Within 1 year after license issuance (See plan for detailed activities and schedule)
CULTURAL RESOURCES			
YB-CR1	Implement Historic Properties Management Plan	Implement plan approved by FERC	After FERC approval of plan (See plan for detailed activities and schedule)
AESTHETIC RESOURCES			
YB-AER1	Implement Visual Resource Management Plan on Federal Land	Implement plan approved by FERC	After FERC approval of plan (See plan for detailed activities and schedule)

E5.4 Estimated Costs of Environmental Measures

Table 7.1.3-3 in Section 7 provides an estimate of the costs of construction, operation, and maintenance of NID's proposed Yuba-Bear Hydroelectric Project environmental measures.

E5.5 Maps Showing Location of Environmental Measures

Figures E5.5-1 through E5.5-2 show the location of NID's proposed Yuba-Bear Hydroelectric Project environmental measures, with the exception of 13 measures that pertain to the Project in general. Since the 13 measures do not pertain to a specific location, other than the area within the FERC Project Boundary, specific geographic locations to which each measure applies cannot be easily shown on a map. The proposed measures not shown on the maps are:

- Proposed Measure YB-GEN1: Annual Consultation with Forest Service and BLM
- Proposed Measure YB-GEN2: Annual Employee Training
- Proposed Measure YB-GEN3: Annual Review of Special-Status Species Lists and Assessment of New Species on Federal Land
- Proposed Measure YB-GEN4: Consultation Regarding New Ground Disturbing Activities on Federal Land
- Proposed Measure YB-GEN5: Consultation Regarding New Facilities on Federal Land
- Proposed Measure YB-GEN6: Development and Implementation of Coordinated Operations Plan for Yuba-Bear Hydroelectric Project and Drum-Spaulding Project
- Proposed Measure YB-GEN7: Pesticide and Herbicide Use Restrictions on Federal Land (Was Measure YB-TR-3, *Pesticide and Herbicide Use Restrictions on Federal land*, in FLA)
- Proposed Measure YB-TR1: Implement Non-Native Invasive Plant Management Plan

- Proposed Measure YB-TR2: Implement Vegetation Management Plan on Federal Land
- Proposed Measure YB-T6: Bat Management
- Proposed Measure YB-LU1: Implement Transportation Management Plan
- Proposed Measure YB-LU2: Implement Fire Prevention and Response Plan on Federal Land
- Proposed Measure YB-AER1: Implement Visual Resource Management Plan on Federal Land
- Proposed Measure YB-WR2: Development and Implementation of Recreation Facilities Construction Hazardous Material Spill Prevention, Control and Countermeasures Plan

In addition, due to the privileged nature of the information, NID has not shown on the maps locations related to NID's Proposed Measure YB-CR1, Implement Historic Properties Management Plan.

Page Left Blank

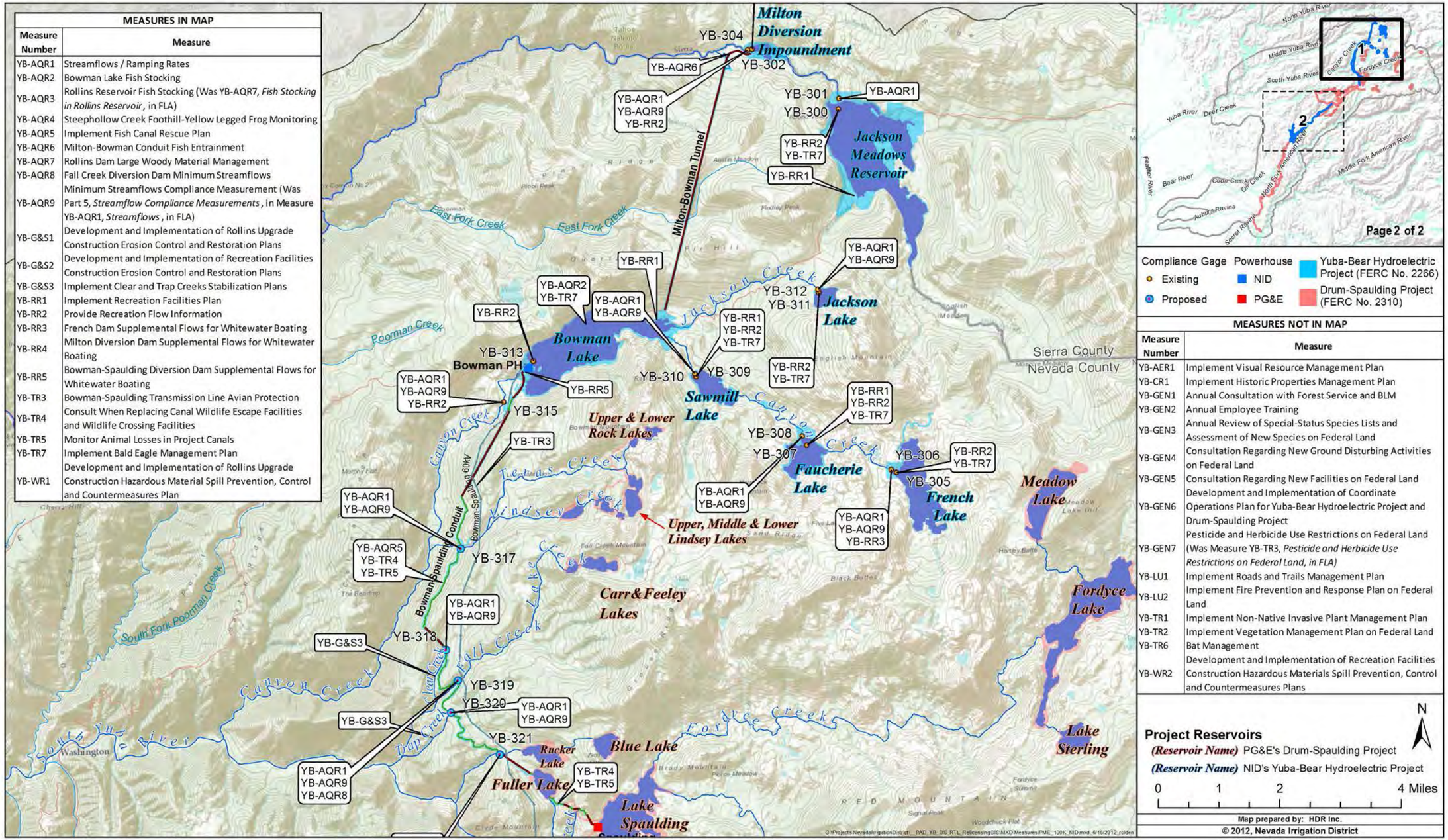


Figure E5.5-1. Map of Proposed Yuba-Bear Hydroelectric Project Resource Measures (Sheet 1 of 2).

Figure E5.5-2. Map of Proposed Yuba-Bear Hydroelectric Project Resource Measures (Sheet 2 of 2).

AMENDED APPENDIX E12

Licensees' Operations Model, Hydrology Information, Technical Memoranda and Project Videos

On April 12, 2011, Pacific Gas and Electric Company (PG&E) filed with the Federal Energy Regulatory Commission (FERC or Commission) an Application for License for a Major Project - Existing Dam (Final License Application or FLA) for PG&E's Drum-Spaulding Project, Project 2310 (Project). On April 15, 2011, Nevada Irrigation District (NID) filed with the Commission an Application for License for a Major Project - Existing Dam for NID's Yuba-Bear Hydroelectric Project, Project 2266.[1] NID and PG&E are cooperating and coordinating with each other on their relicensing efforts, which included preparing a joint, two-project, Exhibit E, *Environmental Report*, and including that Exhibit E in each of their respective FLAs.[2]

The original FLAs contained a joint Exhibit E, Appendix E12 titled: *Licensees' Operations Model, Hydrology Information, Technical Memoranda and Project Videos*. Appendix E12 included the following material, filed on 56 CD/DVDs, for both NID's Yuba-Bear Hydroelectric Project and PG&E's Drum-Spaulding Project:

- One disc containing the HEC-ResSim Operations Model for NID's Yuba-Bear Hydroelectric Project and PG&E's Drum-Spaulding Project, including the results of model scenario runs made by Licensees and referenced in Exhibit E (Disc 1);
- One disc containing Hydrology and Power Generation information (Disc 2);
- Forty-nine discs containing 42 technical memoranda, which include the results of relicensing studies for one or both projects (38 technical memoranda that apply to the Yuba-Bear Hydroelectric Project and 38 technical memoranda that apply to the Drum-Spaulding Project) (Discs 3 through 51); and
- Five DVDs containing a helicopter video of both projects' facilities and many of the related stream reaches (Discs 52 through 56).

In conformance with 18 CFR § 5.27, NID files with FERC this Amendment to Exhibit E, Appendix E12, *Licensees' Operations Model, Hydrology Information, Technical Memoranda and Project Video*, as part of NID's Amended Application for NID's Yuba-Bear Hydroelectric Project. NID is replacing one of the original discs with a new one, as detailed below.

[1] NID and PG&E are referred to individually as "Licensee" and collectively as "Licensees;" the Yuba-Bear Hydroelectric Project and Drum-Spaulding Project are referred to individually as "Project" and collectively as "projects;" and NID's Yuba-Bear Hydroelectric Project Final License Application and PG&E's Drum-Spaulding Project Final License Application are collectively referred to as "FLAs" and individually referred to as "FLA."

[2] NID and PG&E are cooperating and coordinating with each other on their relicensing efforts for many reasons, including: 1) the hydro projects are operationally interrelated and generally have physical features located in common watersheds; and 2) the two projects have the same license expiration date of April 30, 2013.

This Amended Appendix E12 contains one DVD:

- One DVD that fully replaces the one Hydrology DVD in the FLA (Disc 2 of 56). This version of the disc includes updated historical streamflow spreadsheets and HEC-DSS data for two locations: the Bear River above Highway 20 (gage YB-198), a compliance location for the Drum-Spaulding Project; and the Bear River immediately below Dutch Flat Afterbay Dam (gage YB-197), a compliance location for the Yuba-Bear Hydroelectric Project. All other data on the disc are the same as that submitted on the original Appendix E12 disc.

This Amended Appendix E12 does not replace or alter the other 55 CDs/DVDs in NID's FLA, which are incorporated by reference into the Amended Appendix E12.

Due to the size and format of the material in this Amended Appendix E12, NID cannot e-file these materials. Instead, NID is filing with FERC the hardcopies of these materials (on DVD) in this appendix as part of NID's Amended Application. Copies of the Amended Exhibit E, Appendix E12 material may be obtained upon request by contacting Mr. Ron Nelson, NID General Manager, (530) 273-6185 or by e-mail at nelson@nidwater.com.

Application for a New License
Major Project – Existing Dam

Amended Exhibit G
Project Maps

Yuba-Bear Hydroelectric Project
FERC Project No. 2266-096

Prepared by:
Nevada Irrigation District
1036 West Main Street
Grass Valley, CA 95945
www.nidwater.com

June 2012

Table of Contents

List of Tables

List of Figures

List of Appendices

Page Left Blank

EXHIBIT G

Project Maps

1.0 Introduction

In conformance with 18 CFR § 5.27, the Nevada Irrigation District (NID or Licensee) files with the Federal Energy Regulatory Commission (FERC or Commission) this Amended Exhibit D, Project Maps, as part of NID's Amended Application (Amended Application) for NID's Yuba-Bear Hydroelectric Project, Project 2266 (Project).

This Amended Exhibit G fully replaces Exhibit G in NID's April 15, 2011 Application for License for a Major Project - Existing Dam (Final License Application, or FLA) for the Project.

NID has prepared this Exhibit G in conformance with Title 18 of the Code of Federal Regulations (CFR), Subchapter B (Regulations under the Federal Power Act), Part 5 (Integrated Licensing Process). In particular, this report conforms to the regulations in 18 CFR § 5.18(a)(5)(iii), which requires in part that the application include an Exhibit G in conformance with 18 CFR § 4.41(h) and 4.39. Section 4.41(h) pertains to Project maps and § 4.39 provides specifications for maps and drawings. As a reference, these two sections state:

18 CFR § 4.41(h): Exhibit G is a map of the project that must conform to the specifications of § 4.39. In addition, to the other components of Exhibit G, the applicant must provide the project boundary data in a geo-referenced electronic format - such as ArcView shape files, GeoMedia files, MapInfo files, or any similar format. The electronic boundary data must be positionally accurate to ± 40 feet, in order to comply with the National Map Accuracy Standards for maps at a 1:24,000 scale (the scale of USGS quadrangle maps). The electronic Exhibit G data must include a text file describing the map projection used (*i.e.*, UTM, State Plane, Decimal Degrees, etc.), the map datum (*i.e.*, feet, meters, miles, etc.). Three sets of the maps must be submitted on compact disk or other appropriate electronic media. If more than one sheet is used for the paper maps, the sheets must be numbered consecutively, and each sheet must bear a small insert sketch showing the entire project and indicate that portion of the project depicted on that sheet. Each sheet must contain a minimum of three known reference points. The latitude and longitude coordinates, or state plane coordinates, of each reference point must be shown. If at any time after the application is filed there is any change in the project boundary, the applicant must submit, within 90 days following the completion of project construction, a final exhibit G showing the extent of such changes. The map must show:

(1) *Location of the project and principal features.* The map must show the location of the project as a whole with reference to the affected stream or other body of water and, if possible, to a nearby town or any other permanent monuments or objects, such as roads, transmission lines or other structures, that can be noted on the map and recognized in the field. The map must also show the relative locations and physical interrelationships of the principal project works and other features described under paragraph (b) of this section (Exhibit A).

(2) *Project boundary.* The map must show a project boundary enclosing all project works and other features described under paragraph (b) of this section (Exhibit A) that are to be licensed. If accurate survey information is not available at the time the application is filed, the applicant must so state, and a tentative boundary may be submitted. The boundary must enclose only those lands necessary for operation and maintenance of the project and for other project purposes, such as recreation, shoreline control, or protection of environmental resources (*see* paragraph (f) of this section (Exhibit E)). Existing residential,

commercial, or other structures may be included within the boundary only to the extent that underlying lands are needed for project purposes (e.g., for flowage, public recreation, shoreline control, or protection of environmental resources). If the boundary is on land covered by a public survey, ties must be shown on the map at sufficient points to permit accurate platting of the position of the boundary relative to the lines of the public land survey. If the lands are not covered by a public land survey, the best available legal description of the position of the boundary must be provided, including distances and directions from fixed monuments or physical features. The boundary must be described as follows:

(i) *Impoundments.*

(A) The boundary around a project impoundment must be described by one of the following:

(1) Contour lines, including the contour elevation (preferred method);

(2) Specified courses and distances (metes and bounds);

(3) If the project lands are covered by a public land survey, lines upon or parallel to the lines of the survey; or

(4) Any combination of the above methods.

(B) The boundary must be located no more than 200 feet (horizontal measurement) from the exterior margin of the reservoir, defined by the normal maximum surface elevation, except where deviations may be necessary in describing the boundary according to the above methods or where additional lands are necessary for project purposes, such as public recreation, shoreline control, or protection of environmental resources.

(ii) *Continuous features.* The boundary around linear ("continuous") project features such as access roads, transmission lines, and conduits may be described by specified distances from center lines or offset lines of survey. The width of such corridors must not exceed 200 feet unless good cause is shown for a greater width. Several sections of a continuous feature may be shown on a single sheet with information showing the sequence of contiguous sections.

(iii) *Noncontinuous features.*

(A) The boundary around noncontinuous project works such as dams, spillways, and powerhouses must be described by one of the following:

(1) Contour lines;

(2) Specified courses and distances;

(3) If the project lands are covered by a public land survey, lines upon or parallel to the lines of the survey; or

(4) Any combination of the above methods.

(B) The boundary must enclose only those lands that are necessary for safe and efficient operation and maintenance of the project or for other specified project purposes, such as public recreation or protection of environmental resources.

(3) *Federal lands.* Any public lands and reservations of the United States ("Federal lands") [*see* 16 U.S.C. 795(1) and (2)] that are within the project boundary, such as lands administered by the U.S. Forest Service, Bureau of Land Management, or National Park Service, or Indian tribal lands, and the boundaries of those Federal lands, must be identified as such on the map by:

(i) Legal subdivisions of a public land survey of the affected area (a protraction of identified township and section lines is sufficient for this purpose); and

(ii) The Federal agency, identified by symbol or legend, that maintains or manages each identified subdivision of the public land survey within the project boundary; or

(iii) In the absence of a public land survey, the location of the Federal lands according to the distances and directions from fixed monuments or physical features. When a Federal survey monument or a Federal bench mark will be destroyed or rendered unusable by the construction of project works, at least two permanent, marked witness monuments or bench marks must be established at accessible points. The maps show the location (and elevation, for bench marks) of the survey monument or bench mark which

will be destroyed or rendered unusable, as well as of the witness monuments or bench marks. Connecting courses and distances from the witness monuments or bench marks to the original must also be shown.

(iv) The project location must include the most current information pertaining to affected Federal lands as described under §4.81(b)(5).

(4) *Non-Federal lands.* For those lands within the project boundary not identified under paragraph (h)(3) of this section, the map must identify by legal subdivision:

(i) Lands owned in fee by the applicant and lands that the applicant plans to acquire in fee; and

(ii) Lands over which the applicant has acquired or plans to acquire rights to occupancy and use other than fee title, including rights acquired or to be acquired by easement or lease.

18 CFR §4.39: Specifications for maps and drawings. All required maps and drawings must conform to the following specifications, except as otherwise prescribed in this chapter:

(a) Each original map or drawing must consist of a print on silver or gelatin 35mm microfilm mounted on Type D (3 1/4" by 7 3/8") aperture cards. Full-sized prints of maps and drawings must be on sheets no smaller than 24 by 36 inches and no larger than 28 by 40 inches. A space five inches high by seven inches wide must be provided in the lower right hand corner of each sheet. The upper half of this space must bear the title, numerical and graphical scale, and other pertinent information concerning the map or drawing. The lower half of the space must be left clear. Exhibit G drawings must be stamped by a Registered Land Surveyor. If the drawing size specified in this paragraph limits the scale of structural drawings (exhibit F drawings) described in paragraph (c) of this Section, a smaller scale may be used for those drawings. Potential applicants or licensees may be required to file maps or drawings in electronic format as directed by the Commission.

(b) Each map must have a scale in full-sized prints no smaller than one inch equals 0.5 miles for transmission lines, roads, and similar linear features and no smaller than one inch equals 1,000 feet for other project features, including the project boundary. Where maps at this scale do not show sufficient detail, large scale maps may be required. Each map must show:

(1) True and magnetic meridians;
(2) State, county, and town lines; and
(3) Boundaries of public lands and reservations of the United States [see 16 U.S.C. 796 (1) and (2)], if any. If a public land survey is available, the maps must show all lines of that survey crossing the project area and all official subdivisions of sections for the public lands and reservations, including lots and irregular tracts, as designated on the official plats of survey that may be obtained from the Bureau of Land Management, Washington, D.C., or examined in the local land survey office; to the extent that a public land survey is not available for public lands and reservations of the United States, the maps must show the protractions of townships and section lines, which, if possible, must be those recognized by the Federal agency administering those lands.

(c) Drawings depicting details of project structures must have a scale in full-sized prints no smaller than:

(1) One inch equals 50 feet for plans, elevations, and profiles; and
(2) One inch equals 10 feet for sections.

(d) Each map or drawing must be drawn and lettered to be legible when it is reduced to a print that is 11 inches on its shorter side. Following notification to the applicant that the application has been accepted for filing [see §4.31(c)], prints reduced to that size must be bound in each copy of the application which is required to be submitted to the Commission or provided to any person, agency, or other entity.

(e) The maps and drawings showing project location information and details of project structures must be filed in accordance with the Commission's instructions on submission of Critical Energy Infrastructure Information in §§388.112 and 388.113 of subchapter X of this chapter.

Besides this introductory material, this Exhibit G includes three sections. Section 2.0 provides a list of all Project maps to show the FERC Project Boundary for the proposed Project as described in this Application. The Project maps are included in Attachment G-1 to this exhibit. Sections 3.0 and 4.0 provide a list of attachments to this Exhibit G and a list of references, respectively.

See Amended Exhibit A for a description of Project facilities and features, Exhibit B for a description of Project operations, Exhibit C for a construction history and a construction schedule, Exhibit D for costs and financing information, and Amended Exhibit E for a discussion of potential environmental effects and Licensee's proposed resource management measures. Design Drawings are included in Exhibit F. Exhibit H contains a detailed description of the need for the electricity provided by the Project, the availability of electrical energy alternatives, and other miscellaneous information.

1.1 Description of Data Presented in Project Maps

In an attempt to use best data available to prepare the Project maps, multiple data sources were queried. The following discusses the data sources, and the process used by NID to develop the Yuba-Bear Hydroelectric Project Exhibit G Project maps provided in this exhibit.

Project maps were developed using Geographic Information Systems (GIS).

The primary reference for all geospatial information displayed on the Project maps was the Public Land Survey System (PLSS) obtained from the United States Department of Interior (UDOI), Bureau of Land Management's (BLM) California State Office geospatial clearinghouse. The data were obtained in September 2010. All other data on the Project maps tie to the PLSS system as digitally represented by the BLM source data.

The FERC Project Boundary did not previously exist in a digital or georeferenced format. The existing FERC Project Boundary is depicted on 24 hardcopy Exhibit K maps (Hydroelectric Project Boundary) and 3 hardcopy exhibit G maps (Bowman-Spaulding Transmission Line Project Boundary), which are part of the existing FERC license, and have the boundary described by surveyed coordinates, offsets and angles referenced to PLSS coordinates. To create a digital representation of the existing FERC Project Boundary in a projected coordinate system, the boundary was digitized into AutoCAD using the coordinates displayed on the Exhibit K maps. The boundaries were then georeferenced into GIS using the PLSS data. The boundary was then edited, as necessary, to close the polygons and tie the boundary to the PLSS reference points depicted on the Exhibit K drawings.

Where errors in the boundary were found, the boundary was modified using best data available. Data sources for modified boundaries included map grade sub-meter Geographic Positioning Systems (GPS) data and high-resolution color orthorectified aerial images from the United States Department of Agriculture (USDA), National Agriculture Imagery Program (NAIP) and archives of imagery from the aerial imagery vendor Digital Globe®.

Once the boundary was defined digitally, updates and changes to the FERC Project Boundary proposed in Exhibit A, Section 6.2 were integrated into the Boundary. Primary Project access road alignments and expansions to include portions of existing Project recreation facilities were integrated using field surveyed and aerial photo checked sub-meter GPS data.

The only Project facilities removed as part of the April 2011 FLA or NID's Amended Application were the Jackson Meadows Administrative Buildings. These buildings were removed from the FERC Project Boundary by digitizing lines over an aerial image that conservatively encompassed all existing Project facilities while excluding facilities proposed for removal from the Project. This method was used in an effort to maintain the geometry of the existing boundary to degree possible while still excluding the facility proposed for removal from the Project.

Boundaries around Project reservoirs were changed from the surveyed metes and bounds to the FERC preferred method of defining the boundary by a contour above the reservoir high water. Topographic contours representing elevations above normal maximum water surface elevations are based on the United States Geologic Survey (USGS) National Elevation Dataset (NED) 1/3 arc second Digital Elevation Model (DEM), accessed from the USGS web server in August 2010. The DEM data were converted from the USGS standard vertical datum (North American Vertical Datum of 1988, or NAVD88) to the vertical datum standard for Project maps, which is the National Geodetic Vertical Datum of 1929 (NGVD 29). Once the vertical datum of the DEM was converted, the contours were generated based on those data. Contours that defined the FERC Project Boundary were selected that best approximate the existing FERC Project Boundary and that met the operational needs of Licensee, within guidelines established by FERC regarding use of the contour data. Where the selected contour exceeded 200 feet (ft), horizontally from the reservoir high water, a 200 ft horizontal buffer of the reservoir high water was used to define the FERC Project Boundary.

Land ownership information was derived from multiple sources as well. NID and private land ownership were taken from GIS data sets that used parcel geometry developed by Placer, Sierra and Nevada counties. All data were obtained in January 2008. Federal land ownership was taken from both the GIS clearinghouses for the State of California office of the BLM for BLM land ownership and from USDA Forest Service Region 5 for Tahoe National Forest land ownership, which was obtained in September 2010. The various datasets were combined and slightly modified where overlap or gaps occurred in the geometry and, in the case of the county parcel data, where they did not match the PLSS data geometry. All three data sets have disclaimers that state the dataset is not intended to be used to determine land ownership of specific locations on the ground, and are intended to be used for planning and information purposes only.

Non-Project roads have geometry that originated from a GIS data set provided by the Tahoe National Forest. Reservoir high water level polygons were derived from the USGS National Hydrography Data Set. Both of these datasets were checked and modified to match high-

resolution color aerial imagery from the USDA NAIP and archives of imagery from the aerial imagery vendor Digital Globe®.

All elevation data in this exhibit are in NGVD 29 unless otherwise specified.

2.0 Project Maps

General maps for the NID's Project, as described in this Amended Application, are provided in the exhibit maps listed in Table 2-0-1. These maps depict the proposed FERC Project Boundary, as amended, in conformance with 18 CFR § 4.39.

Table 2.0-1. Lists of Exhibit G Project maps for the Yuba-Bear Hydroelectric Project.

Proposed Exhibit G Project Map Number in New License	Drawing Name
G-1	Project Overview Map
G-2	Project Boundary Map - Jackson Meadow Reservoir (1 of 2)
G-3	Project Boundary Map - Jackson Meadow Reservoir (2 of 2)
G-4	Project Boundary Map - Milton Reservoir and Diversion Structures
G-5	Project Boundary Map - Milton-Bowman Tunnel
G-6	Project Boundary Map - Bowman Reservoir
G-7	Project Boundary Map - French Lake
G-8	Project Boundary Map - Jackson Lake
G-9	Project Boundary Map - Faucherie and Sawmill Reservoirs
G-10	Project Boundary Map - Bowman-Spaulding Conduit & 60 kV Transmission Line (1 of 7)
G-11	Project Boundary Map - Bowman-Spaulding Conduit & 60 kV Transmission Line (2 of 7)
G-12	Project Boundary Map - Bowman-Spaulding Conduit & 60 kV Transmission Line (3 of 7)
G-13	Project Boundary Map - Bowman-Spaulding Conduit & 60 kV Transmission Line (4 of 7)
G-14	Project Boundary Map - Bowman-Spaulding Conduit & 60 kV Transmission Line (5 of 7)
G-15	Project Boundary Map - Bowman-Spaulding Conduit & 60 kV Transmission Line (6 of 7)
G-16	Project Boundary Map - Bowman-Spaulding Conduit & 60 kV Transmission Line (7 of 7)
G-17	Project Boundary Map – 60 kV Transmission Line
G-18	Project Boundary Map - Dutch Flat No.2 Conduit (1 of 3)
G-19	Project Boundary Map - Dutch Flat No. 2 Conduit (2 of 3)
G-20	Project Boundary Map - Dutch Flat No. 2 Conduit (3 of 3)
G-21	Project Boundary Map - Dutch Flat Forebay and Afterbay
G-22	Project Boundary Map - Chicago Park Conduit (1 of 3)
G-23	Project Boundary Map - Chicago Park Conduit (2 of 3)
G-24	Project Boundary Map - Chicago Park Conduit (3 of 3)
G-25	Project Boundary Map - Rollins Reservoir (1 of 3)
G-26	Project Boundary Map - Rollins Reservoir (2 of 3)
G-27	Project Boundary Map - Rollins Reservoir (3 of 3)

3.0 List of Appendices

This exhibit includes one appendix:

- Appendix G-1: Project Maps (27 maps)

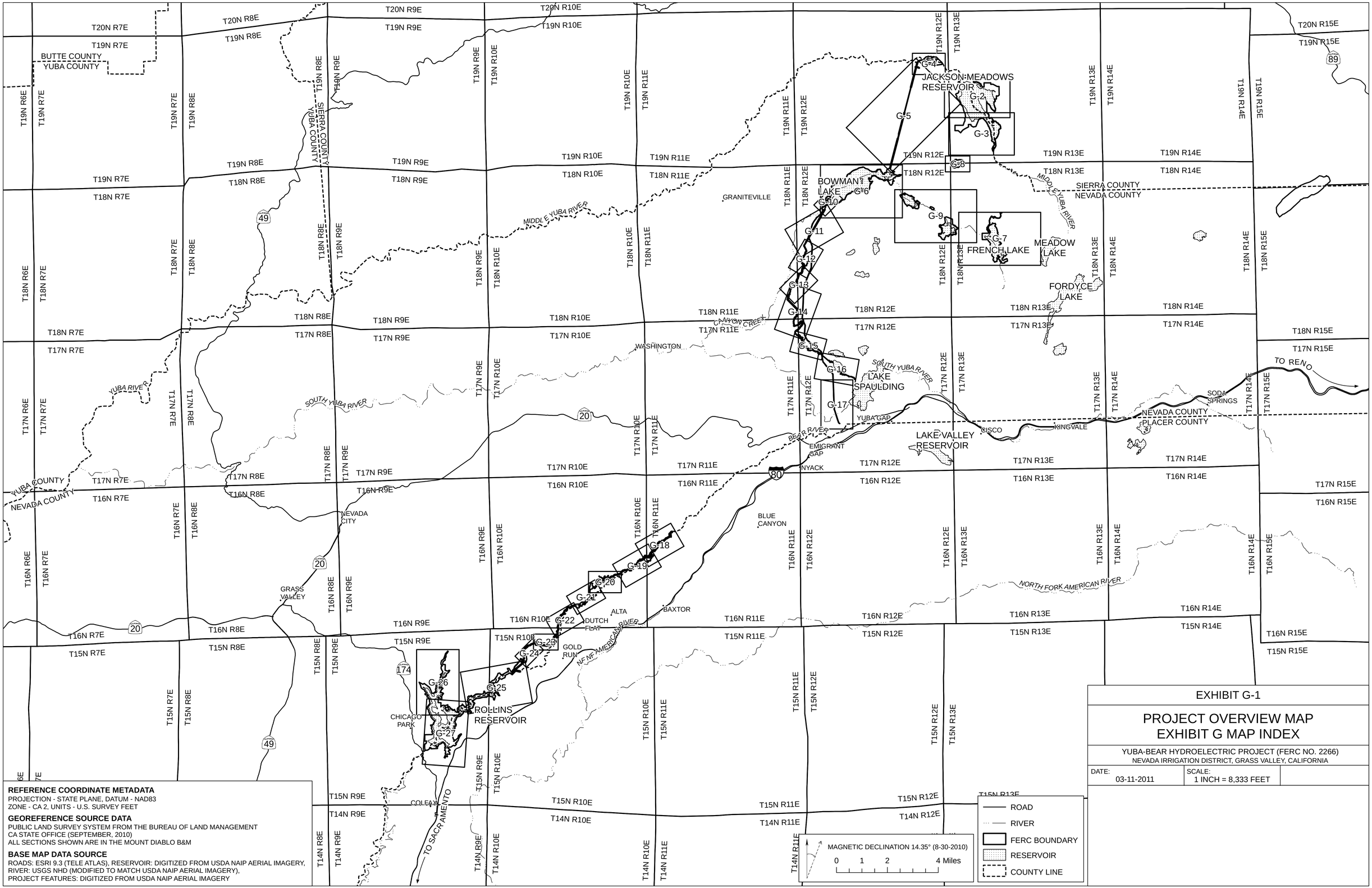
4.0 References Cited

None.

Page Left Blank

APPENDIX G-1

Yuba-Bear Hydroelectric Project Exhibit G Maps



REFERENCE COORDINATE METADATA
PROJECTION - STATE PLANE, DATUM - NAD83
ZONE - CA 2, UNITS - U.S. SURVEY FEET

GEOREFERENCE SOURCE DATA
PUBLIC LAND SURVEY SYSTEM FROM THE BUREAU OF LAND MANAGEMENT
CA STATE OFFICE (SEPTEMBER, 2010)
ALL SECTIONS SHOWN ARE IN THE MOUNT DIABLO B&M

BASE MAP DATA SOURCE
ROADS: ESRI 9.3 (TELE ATLAS), RESERVOIR: DIGITIZED FROM USDA NAIP AERIAL IMAGERY,
RIVER: USGS NHD (MODIFIED TO MATCH USDA NAIP AERIAL IMAGERY),
PROJECT FEATURES: DIGITIZED FROM USDA NAIP AERIAL IMAGERY

EXHIBIT G-1

PROJECT OVERVIEW MAP
EXHIBIT G MAP INDEX

YUBA-BEAR HYDROELECTRIC PROJECT (FERC NO. 2266)
NEVADA IRRIGATION DISTRICT, GRASS VALLEY, CALIFORNIA

DATE:	SCALE:	
03-11-2011	1 INCH = 8,333 FEET	

FERC NO. 2266

REFERENCE COORDINATE METADATA
PROJECTION - STATE PLANE, DATUM - NAD83
ZONE - CA 2, UNITS - U.S. SURVEY FEET
RESERVOIR ELEVATION - NGVD 29

GEOREFERENCE SOURCE DATA
PUBLIC LAND SURVEY SYSTEM FROM THE BUREAU OF LAND MANAGEMENT
CA STATE OFFICE (SEPTEMBER, 2010)
ALL SECTIONS SHOWN ARE IN THE MOUNT DIABLO B&M

BASE MAP DATA SOURCE
ROADS: ESRI 9.3 (TELE ATLAS), RESERVOIR: DIGITIZED FROM USDA NAIP AERIAL IMAGERY,
RIVER: USGS NHD (MODIFIED TO MATCH USDA NAIP AERIAL IMAGERY),
PROJECT FEATURES: DIGITIZED FROM USDA NAIP AERIAL IMAGERY

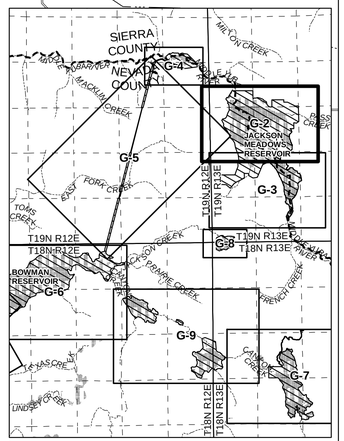
STATE OF MAINE
STEPHEN W. EVERETT
2161
PROFESSIONAL LAND SURVEYOR

SURVEYORS STATEMENT

THE PURPOSE OF THIS MAP IS TO PROVIDE A GEOREFERENCED VISUAL DEPICTION OF THE LOCATION OF PROJECT FEATURES AND BOUNDARIES BASED ON THE BEST AVAILABLE HISTORICAL DRAWINGS AND DIGITAL REFERENCE SOURCES INCORPORATED INTO THE GEOGRAPHIC INFORMATION SYSTEM (GIS). LOCATIONS HAVE NOT BEEN VERIFIED BY PHYSICAL FIELD SURVEYS AND THIS DRAWING SHOULD NOT BE USED FOR PURPOSES OF DEVELOPING PROPERTY BOUNDARY DESCRIPTIONS.

G2-1
N: 2314847
E: 6965976

LOW LEVEL OUTLET ACCESS RD (YBJMO_001)
LOW LEVEL OUTLET STRUCTURE
JACKSON MEADOWS VISTA
SPILLWAY CHANNEL
MIDDLE YUBA RIVER
JACKSON MEADOWS DAM
JACKSON MEADOWS SPILLWAY
USDA FOREST SERVICE
NID
ASPEN GROUP
USDA FOREST SERVICE
PASS CREEK CAMPGROUND
ASPEN PICNIC
HENNESS PASS RD (SIE-0301)
PASS CREEK
PINOLI RIDGE RD
T19N R12E
T19N R13E
SIERRA COUNTY
NEVADA COUNTY
PROJECT BOUNDARY DEFINED BY CONTOUR 9 FT ABOVE HIGH WATER
EAST MEADOW CAMPGROUND
JACKSON MEADOWS RESERVOIR NORMAL MAXIMUM WATER SURFACE ELEVATION 6,036 FT
JACKSON POINT CAMPGROUND
G2-2
N: 2309659
E: 6973849
G2-3
N: 2309614
E: 6968577
MATCH LINE, G-3
GRANITEVILLE RD



MAGNETIC DECLINATION 14.35° (8-30-2010)
0 200 400 800 Feet

- REFERENCE POINT
- ROAD
- PRIMARY PROJECT ACCESS ROAD
- RIVER
- SECTION LINE
- FERC BOUNDARY
- RESERVOIR
- COUNTY LINE

LAND OWNERSHIP
- NEVADA IRRIGATION DISTRICT
- USDA FOREST SERVICE

EXHIBIT G-2

PROJECT BOUNDARY MAP
JACKSON MEADOWS RESERVOIR (1 OF 2)

YUBA-BEAR HYDROELECTRIC PROJECT (FERC NO. 2266)
NEVADA IRRIGATION DISTRICT, GRASS VALLEY, CALIFORNIA

DATE:	SCALE:	
03-11-2011	1 INCH = 400 FEET	

FERC NO. 2266

T19N R13E

PROJECT BOUNDARY DEFINED
BY CONTOUR 9 FT ABOVE HIGH WATER

MATCH LINE, G-2

USDA FOREST SERVICE

NID

USDA
FOREST
SERVICE

JACKSON MEADOWS RESERVOIR
NORMAL MAXIMUM WATER
SURFACE ELEVATION 6,036 FT.

SIERRA COUNTY
NEVADA COUNTY

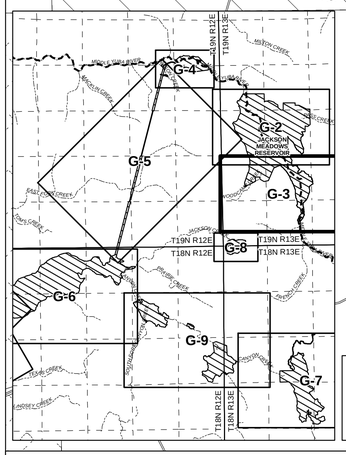
JACKSON
MEADOWS
ADMINISTRATIVE
CENTER

INTERPRETIVE
TRAIL

INTERPRETIVE
TRAIL PARKING
AND INFORMATION SIGN

USDA FOREST SERVICE

NID



MAGNETIC DECLINATION 14.35° E (8-30-2010)

0 200 400 800 Feet

- REFERENCE POINT
- ROAD
- PRIMARY PROJECT ACCESS ROAD
- RIVER
- SECTION LINE
- FERC BOUNDARY
- RESERVOIR
- COUNTY LINE

LAND OWNERSHIP

- NEVADA IRRIGATION DISTRICT
- USDA FOREST SERVICE

REFERENCE COORDINATE METADATA

PROJECTION - STATE PLANE, DATUM - NAD83
ZONE - CA 2, UNITS - U.S. SURVEY FEET
RESERVOIR ELEVATION - NGVD 29

GEOREFERENCE SOURCE DATA

PUBLIC LAND SURVEY SYSTEM FROM THE BUREAU OF LAND MANAGEMENT
CA STATE OFFICE (SEPTEMBER, 2010)
ALL SECTIONS SHOWN ARE IN THE MOUNT DIABLO B&M

BASE MAP DATA SOURCE

ROADS: ESRI 9.3 (TELE ATLAS), RESERVOIR: DIGITIZED FROM USDA NAIP AERIAL IMAGERY,
RIVER: USGS NHD (MODIFIED TO MATCH USDA NAIP AERIAL IMAGERY),
PROJECT FEATURES: DIGITIZED FROM USDA NAIP AERIAL IMAGERY

STATE OF MAINE
STEPHEN W EVERETT 2161
PROFESSIONAL
LAND SURVEYOR

SURVEYORS STATEMENT

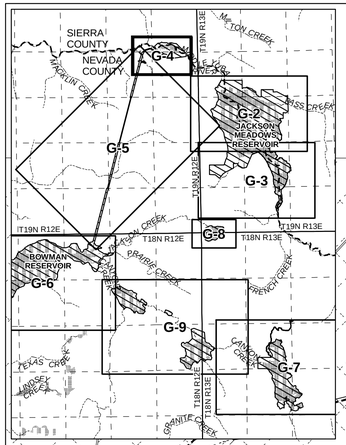
THE PURPOSE OF THIS MAP IS TO PROVIDE A GEOREFERENCED VISUAL DEPICTION OF THE LOCATION OF PROJECT FEATURES AND BOUNDARIES BASED ON THE BEST AVAILABLE HISTORICAL DRAWINGS AND DIGITAL REFERENCE SOURCES INCORPORATED INTO THE GEOGRAPHIC INFORMATION SYSTEM (GIS). LOCATIONS HAVE NOT BEEN VERIFIED BY PHYSICAL FIELD SURVEYS AND THIS DRAWING SHOULD NOT BE USED FOR PURPOSES OF DEVELOPING PROPERTY BOUNDARY DESCRIPTIONS.

EXHIBIT G-3

PROJECT BOUNDARY MAP
JACKSON MEADOWS RESERVOIR (2 OF 2)

YUBA-BEAR HYDROELECTRIC PROJECT (FERC NO. 2266)
NEVADA IRRIGATION DISTRICT, GRASS VALLEY, CALIFORNIA

DATE:	SCALE:	
06-15-2012	1 INCH = 400 FEET	



T19N R12E

REFERENCE COORDINATE METADATA
PROJECTION - STATE PLANE, DATUM - NAD83
ZONE - CA 2, UNITS - U.S. SURVEY FEET
RESERVOIR ELEVATION - NGVD 29

GEOREFERENCE SOURCE DATA
PUBLIC LAND SURVEY SYSTEM FROM THE BUREAU OF LAND MANAGEMENT
CA STATE OFFICE (SEPTEMBER, 2010)
ALL SECTIONS SHOWN ARE IN THE MOUNT DIABLO B&M

BASE MAP DATA SOURCE
ROADS: ESRI 9.3 (TELE ATLAS), RESERVOIR: DIGITIZED FROM USDA NAIP AERIAL IMAGERY,
RIVER: USGS NHD (MODIFIED TO MATCH USDA NAIP AERIAL IMAGERY),
PROJECT FEATURES: DIGITIZED FROM USDA NAIP AERIAL IMAGERY

STATE OF MAINE
STEPHEN W. EVERETT
2161
PROFESSIONAL
LAND SURVEYOR

SURVEYORS STATEMENT

THE PURPOSE OF THIS MAP IS TO PROVIDE A GEOREFERENCED VISUAL DEPICTION OF THE LOCATION OF PROJECT FEATURES AND BOUNDARIES BASED ON THE BEST AVAILABLE HISTORICAL DRAWINGS AND DIGITAL REFERENCE SOURCES INCORPORATED INTO THE GEOGRAPHIC INFORMATION SYSTEM (GIS). LOCATIONS HAVE NOT BEEN VERIFIED BY PHYSICAL FIELD SURVEYS AND THIS DRAWING SHOULD NOT BE USED FOR PURPOSES OF DEVELOPING PROPERTY BOUNDARY DESCRIPTIONS.

G4-2
N: 2320142
E: 6961877

MILTON DIVERSION
IMPOUNDMENT NORMAL MAXIMUM
WATER SURFACE ELEVATION 5,690 FT

MIDDLE YUBA RIVER

NID

MAIN DAM

SOUTH DAM

USDA FOREST SERVICE

MILTON DAY USE

HENNESS PASS RD (SIE-0301)

USFS 301-45

MIDDLE YUBA RIVER

SIERRA COUNTY
NEVADA COUNTY

ROAD
40' PROJECT WIDTH
20' ON EITHER SIDE
OF CENTERLINE

CONDUIT
60' PROJECT WIDTH
30' ON EITHER SIDE
OF CENTERLINE

BEGIN PIPELINE

PIPELINE OUTLET ACCESS RD (YBMBP_004)

CONDUIT
100' PROJECT WIDTH
50' ON EITHER SIDE
OF CENTERLINE

BEGIN TUNNEL

WILSON CREEK
DIVERSION DAM

WILSON CREEK
DIVERSION RD
(YBWCD_001)

ROAD
40' PROJECT WIDTH
20' ON EITHER SIDE
OF CENTERLINE

USDA
FOREST
SERVICE

TUNNEL
200' PROJECT WIDTH
100' ON EITHER SIDE
OF CENTERLINE

WILSON CREEK

MATCH LINE G-5

G4-1
N: 2317517
E: 6960603

NID

G4-3
N: 2317486
E: 6964591

MAGNETIC DECLINATION 14.37° E, (8-30-2010)

0 200 400 800 Feet

- REFERENCE POINT
- CANAL
- PIPELINE
- TUNNEL
- ROAD
- PRIMARY PROJECT ACCESS ROAD
- RIVER
- SECTION LINE
- FERC BOUNDARY
- RESERVOIR
- COUNTY LINE

LAND OWNERSHIP

- NEVADA IRRIGATION DISTRICT
- USDA FOREST SERVICE

EXHIBIT G-4

PROJECT BOUNDARY MAP
MILTON RESERVOIR & DIVERSION STRUCTURES

YUBA-BEAR HYDROELECTRIC PROJECT (FERC NO. 2266)
NEVADA IRRIGATION DISTRICT, GRASS VALLEY, CALIFORNIA

DATE:	SCALE:	
03-11-2011	1 INCH = 200 FEET	

FERC NO. 2266

REFERENCE COORDINATE METADATA
PROJECTION - STATE PLANE, DATUM - NAD83
ZONE - CA 2, UNITS - U.S. SURVEY FEET
RESERVOIR ELEVATION - NGVD 29

GEOREFERENCE SOURCE DATA
PUBLIC LAND SURVEY SYSTEM FROM THE BUREAU OF LAND MANAGEMENT
CA STATE OFFICE (SEPTEMBER, 2010)
ALL SECTIONS SHOWN ARE IN THE MOUNT DIABLO B&M

BASE MAP DATA SOURCE
ROADS: ESRI 9.3 (TELE ATLAS), RESERVOIR: DIGITIZED FROM USDA NAIP AERIAL IMAGERY,
RIVER: USGS NHD (MODIFIED TO MATCH USDA NAIP AERIAL IMAGERY),
PROJECT FEATURES: DIGITIZED FROM USDA NAIP AERIAL IMAGERY

STATE OF MAINE
STEPHEN W. EVERETT 2161
PROFESSIONAL LAND SURVEYOR

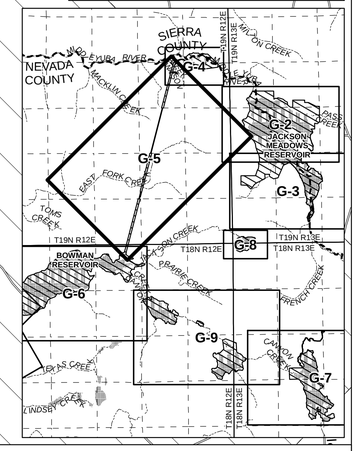
SURVEYORS STATEMENT

THE PURPOSE OF THIS MAP IS TO PROVIDE A GEOREFERENCED VISUAL DEPICTION OF THE LOCATION OF PROJECT FEATURES AND BOUNDARIES BASED ON THE BEST AVAILABLE HISTORICAL DRAWINGS AND DIGITAL REFERENCE SOURCES INCORPORATED INTO THE GEOGRAPHIC INFORMATION SYSTEM (GIS). LOCATIONS HAVE NOT BEEN VERIFIED BY PHYSICAL FIELD SURVEYS AND THIS DRAWING SHOULD NOT BE USED FOR PURPOSES OF DEVELOPING PROPERTY BOUNDARY DESCRIPTIONS.

USDA FOREST SERVICE
T19N E12E
EAST FORK CREEK
G5-1
N: 2302916
E: 6950227
CONDUIT
200' PROJECT WIDTH
100' ON EITHER SIDE
OF CENTERLINE
CONDUIT
50' PROJECT WIDTH
25' ON EITHER SIDE
OF CENTERLINE
USDA FOREST SERVICE
MEADOW LAKE RD
USDA FOREST SERVICE
FLOW GAGE YB-303
MATCH LINE: G-6
NID
FUR HILL SOUTH RD
FUR HILL NORTH RD
AUSTIN MEADOWS RD
PINOLI RIDGE RD
CONDUIT
200' PROJECT WIDTH
100' ON EITHER SIDE
OF CENTERLINE
G5-3
N: 2309592
E: 6962091
USDA FOREST SERVICE
MACKLIN CREEK
CONDUIT
200' PROJECT WIDTH
100' ON EITHER SIDE
OF CENTERLINE
0041-020
G5-2
N: 2313523
E: 6956721
0041-020-10
NID
MATCH LINE: G-4
WILSON CREEK
NID

- REFERENCE POINT
- CANAL
- PIPELINE
- TUNNEL
- ROAD
- PRIMARY PROJECT ACCESS ROAD
- RIVER
- SECTION LINE
- FERC BOUNDARY

LAND OWNERSHIP
- NEVADA IRRIGATION DISTRICT
- USDA FOREST SERVICE



MAGNETIC DECLINATION 14.37° E (8-30-2010)
0 300 600 1,200 Feet

EXHIBIT G-5

PROJECT BOUNDARY MAP
MILTON-BOWMAN DIVERSION CONDUIT

YUBA-BEAR HYDROELECTRIC PROJECT (FERC NO. 2266)
NEVADA IRRIGATION DISTRICT, GRASS VALLEY, CALIFORNIA

DATE:	SCALE:	
03-11-2011	1 INCH = 600 FEET	

FERC NO. 2266

T18N R12E

NID

USDA FOREST SERVICE

MCMURRAY LAKE RD

G6-1
N: 2296170
E: 6942322

MEADOW LAKE RD

MATCH LINE G-5

BEGIN CANAL

CONDUIT
200' PROJECT WIDTH
100' ON EITHER SIDE
OF CENTERLINE

FLOW GAGE
YB-303

BOWMAN LAKE
CAMPGROUND

JACKSON CREEK

PROJECT BOUNDARY DEFINED
BY CONTOUR 52 FT ABOVE
HIGH WATER

BOWMAN LAKE NORMAL
MAXIMUM WATER SURFACE
ELEVATION 5,562 FT

BOWMAN DAM ACCESS RD
(YBBND_001)

BOWMAN
NORTH DAM

BOWMAN
POWERHOUSE

BOWMAN-SPAULDING
DIVERSION DAM

BOWMAN
HOUSE
GARAGE

BOWMAN
HOUSE

MATCH LINE G-10

BEGIN TUNNEL

CANYON CREEK

SPILLWAY CHANNEL

BOWMAN SOUTH DAM

BOWMAN SPILLWAY

BOWMAN-SPAULDING 60KV

BOWMAN RD

GAGE
YB-314

CANYON CREEK

G6-2
N: 2289533
E: 6945043

PROJECT BOUNDARY DEFINED
BY CONTOUR 52 FT ABOVE HIGH WATER

CONDUIT
200' PROJECT WIDTH
100' ON EITHER SIDE
OF CENTERLINE

G6-3
N: 2292272
E: 6951703

CANYON CREEK

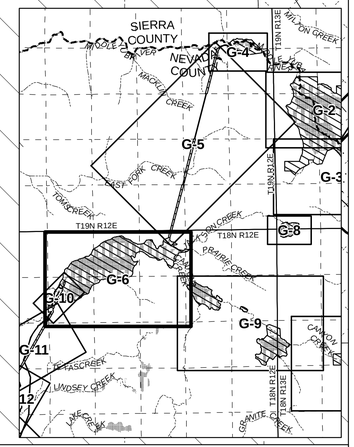


EXHIBIT G-6

PROJECT BOUNDARY MAP
BOWMAN LAKE

YUBA-BEAR HYDROELECTRIC PROJECT (FERC NO. 2266)
NEVADA IRRIGATION DISTRICT, GRASS VALLEY, CALIFORNIA

DATE:	SCALE:	
03-11-2011	1 INCH = 500 FEET	

REFERENCE COORDINATE METADATA
PROJECTION - STATE PLANE, DATUM - NAD83
ZONE - CA 2, UNITS - U.S. SURVEY FEET
RESERVOIR ELEVATION - NGVD 29

GEOREFERENCE SOURCE DATA
PUBLIC LAND SURVEY SYSTEM FROM THE BUREAU OF LAND MANAGEMENT
CA STATE OFFICE (SEPTEMBER, 2010)
ALL SECTIONS SHOWN ARE IN THE MOUNT DIABLO B&M

BASE MAP DATA SOURCE
ROADS: ESRI 9.3 (TELE ATLAS), RESERVOIR: DIGITIZED FROM USDA NAIP AERIAL IMAGERY,
RIVER: USGS NHD (MODIFIED TO MATCH USDA NAIP AERIAL IMAGERY),
PROJECT FEATURES: DIGITIZED FROM USDA NAIP AERIAL IMAGERY

STATE OF MAINE
STEPHEN W. EVERETT 2161
PROFESSIONAL LAND SURVEYOR

SURVEYORS STATEMENT
THE PURPOSE OF THIS MAP IS TO PROVIDE A GEOREFERENCED VISUAL DEPICTION OF THE LOCATION OF PROJECT FEATURES AND BOUNDARIES BASED ON THE BEST AVAILABLE HISTORICAL DRAWINGS AND DIGITAL REFERENCE SOURCES INCORPORATED INTO THE GEOGRAPHIC INFORMATION SYSTEM (GIS). LOCATIONS HAVE NOT BEEN VERIFIED BY PHYSICAL FIELD SURVEYS AND THIS DRAWING SHOULD NOT BE USED FOR PURPOSES OF DEVELOPING PROPERTY BOUNDARY DESCRIPTIONS.

MAGNETIC DECLINATION 14.35° E (8-30-2010)
0 250 500 1,000 1,500 Feet

- REFERENCE POINT
- CANAL
- TUNNEL
- TRANSMISSION LINE
- ROAD
- PRIMARY PROJECT ACCESS ROAD
- RIVER
- SECTION LINE
- FERC BOUNDARY
- RESERVOIR
- COUNTY LINE

LAND OWNERSHIP
- NEVADA IRRIGATION DISTRICT
- USDA FOREST SERVICE

FERC NO. 2266

REFERENCE COORDINATE METADATA
PROJECTION - STATE PLANE, DATUM - NAD83
ZONE - CA 2, UNITS - U.S. SURVEY FEET
RESERVOIR ELEVATION - NGVD 29

GEOREFERENCE SOURCE DATA
PUBLIC LAND SURVEY SYSTEM FROM THE BUREAU OF LAND MANAGEMENT
CA STATE OFFICE (SEPTEMBER, 2010)
ALL SECTIONS SHOWN ARE IN THE MOUNT DIABLO B&M

BASE MAP DATA SOURCE
ROADS: ESRI 9.3 (TELE ATLAS), RESERVOIR: DIGITIZED FROM USDA NAIP AERIAL IMAGERY,
RIVER: USGS NHD (MODIFIED TO MATCH USDA NAIP AERIAL IMAGERY),
PROJECT FEATURES: DIGITIZED FROM USDA NAIP AERIAL IMAGERY

STATE OF MAINE
STEPHEN W. EVERETT
2161
PROFESSIONAL LAND SURVEYOR

SURVEYORS STATEMENT

THE PURPOSE OF THIS MAP IS TO PROVIDE A GEOREFERENCED VISUAL DEPICTION OF THE LOCATION OF PROJECT FEATURES AND BOUNDARIES BASED ON THE BEST AVAILABLE HISTORICAL DRAWINGS AND DIGITAL REFERENCE SOURCES INCORPORATED INTO THE GEOGRAPHIC INFORMATION SYSTEM (GIS). LOCATIONS HAVE NOT BEEN VERIFIED BY PHYSICAL FIELD SURVEYS AND THIS DRAWING SHOULD NOT BE USED FOR PURPOSES OF DEVELOPING PROPERTY BOUNDARY DESCRIPTIONS.

T18N R13E

MATCH LINE, G-9

USFS 843-20

USFS 843-20 (YBFL_001)

ROAD
40' PROJECT WIDTH
20' ON EITHER SIDE
OF CENTERLINE

WEIL LAKE

NID

CANYON CREEK

FRENCH LAKE SPILLWAY

PROJECT BOUNDARY
DEFINED BY CONTOUR
5 FT ABOVE HIGH WATER

FRENCH LAKE DAM

FRENCH LAKE NORMAL
MAXIMUM WATER SURFACE
ELEVATION 6,660.28 FT

PROJECT BOUNDARY
DEFINED BY CONTOUR
5 FT ABOVE HIGH WATER

NID

USDA FOREST SERVICE

G7-1
N: 2277882
E: 6972957

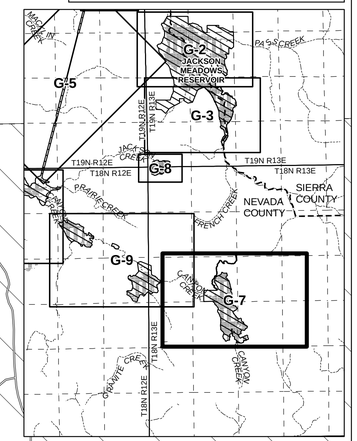
G7-2
N: 2284586
E: 6978199

G7-3
N: 2277894
E: 6978243

CANYON CREEK

REFERENCE POINT
ROAD
PRIMARY PROJECT ACCESS ROAD
RIVER
SECTION LINE
FERC BOUNDARY
RESERVOIR

LAND OWNERSHIP
NEVADA IRRIGATION DISTRICT
USDA FOREST SERVICE



MAGNETIC DECLINATION = 14.33° E, (8-30-2010)

0 500 1,000 2,000 Feet

EXHIBIT G-7

PROJECT BOUNDARY MAP
FRENCH LAKE

YUBA-BEAR HYDROELECTRIC PROJECT (FERC NO. 2266)
NEVADA IRRIGATION DISTRICT, GRASS VALLEY, CALIFORNIA

DATE:	SCALE:	
03-11-2011	1 INCH = 500 FEET	

FERC NO. 2266

REFERENCE COORDINATE METADATA
PROJECTION - STATE PLANE, DATUM - NAD83
ZONE - CA 2, UNITS - U.S. SURVEY FEET
RESERVOIR ELEVATION - NGVD 29

GEOREFERENCE SOURCE DATA
PUBLIC LAND SURVEY SYSTEM FROM THE BUREAU OF LAND MANAGEMENT
CA STATE OFFICE (SEPTEMBER, 2010)
ALL SECTIONS SHOWN ARE IN THE MOUNT DIABLO B&M

BASE MAP DATA SOURCE
ROADS: ESRI 9.3 (TELE ATLAS), RESERVOIR: DIGITIZED FROM USDA NAIP AERIAL IMAGERY,
RIVER: USGS NHD (MODIFIED TO MATCH USDA NAIP AERIAL IMAGERY),
PROJECT FEATURES: DIGITIZED FROM USDA NAIP AERIAL IMAGERY

STATE OF MAINE
STEPHEN W. EVERETT
2161
PROFESSIONAL LAND SURVEYOR

SURVEYORS STATEMENT

THE PURPOSE OF THIS MAP IS TO PROVIDE A GEOREFERENCED VISUAL DEPICTION OF THE LOCATION OF PROJECT FEATURES AND BOUNDARIES BASED ON THE BEST AVAILABLE HISTORICAL DRAWINGS AND DIGITAL REFERENCE SOURCES INCORPORATED INTO THE GEOGRAPHIC INFORMATION SYSTEM (GIS). LOCATIONS HAVE NOT BEEN VERIFIED BY PHYSICAL FIELD SURVEYS AND THIS DRAWING SHOULD NOT BE USED FOR PURPOSES OF DEVELOPING PROPERTY BOUNDARY DESCRIPTIONS.

G8-1
N: 2299080
E: 6966314

JACKSON CREEK

T19N R12E
T19N R13E

SPILLWAY CHANNEL

JACKSON LAKE DAM RD

PROJECT BOUNDARY
DEFINED BY CONTOUR
10 FEET ABOVE HIGH WATER

JACKSON LAKE
DAM

NID

JACKSON LAKE
SPILLWAY

PROJECT BOUNDARY
DEFINED BY CONTOUR
10 FEET ABOVE HIGH WATER

T19N R12E
T18N R12E
36 | 31
1 | 6
T19N R13E

JACKSON LAKE NORMAL
MAXIMUM WATER SURFACE
ELEVATION 6,592.67 FT

G8-3
N: 2297794
E: 6968806

T18N R12E

USDA FOREST SERVICE

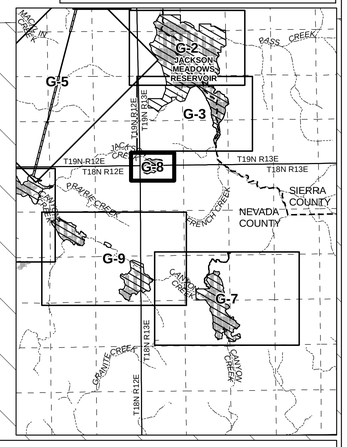
G8-2
N: 2296440
E: 6967495

T18N R13E

- REFERENCE POINT
- ROAD
- PRIMARY PROJECT ACCESS ROAD
- RIVER
- SECTION LINE
- FERC BOUNDARY
- RESERVOIR
- COUNTY LINE

LAND OWNERSHIP

- NEVADA IRRIGATION DISTRICT
- USDA FOREST SERVICE



MAGNETIC DECLINATION = 14.35° E, (8-30-2010)

0 150 300 600 Feet

EXHIBIT G-8

PROJECT BOUNDARY MAP
JACKSON LAKE

YUBA-BEAR HYDROELECTRIC PROJECT (FERC NO. 2266)
NEVADA IRRIGATION DISTRICT, GRASS VALLEY, CALIFORNIA

DATE:	SCALE:	
03-11-2011	1 INCH = 150 FEET	

FERC NO. 2266

REFERENCE COORDINATE METADATA
PROJECTION - STATE PLANE, DATUM - NAD83
ZONE - CA 2, UNITS - U.S. SURVEY FEET
RESERVOIR ELEVATION - NGVD 29

GEOREFERENCE SOURCE DATA
PUBLIC LAND SURVEY SYSTEM FROM THE BUREAU OF LAND MANAGEMENT
CA STATE OFFICE (SEPTEMBER, 2010)
ALL SECTIONS SHOWN ARE IN THE MOUNT DIABLO B&M

BASE MAP DATA SOURCE
ROADS: ESRI 9.3 (TELE ATLAS), RESERVOIR: DIGITIZED FROM USDA NAIP AERIAL IMAGERY,
RIVER: USGS NHD (MODIFIED TO MATCH USDA NAIP AERIAL IMAGERY),
PROJECT FEATURES: DIGITIZED FROM USDA NAIP AERIAL IMAGERY

PROJECT BOUNDARY DATA
THE PROJECT BOUNDARY AROUND THE RESERVOIRS ON THIS SHEET
ARE DEFINED BY BOTH A CONTOUR ABOVE AND BY A HORIZONTAL
BUFFER FROM THE RESERVOIR HIGH WATER, AS DENOTED ON THE DRAWING.

STATE OF MAINE
STEPHEN W. EVERETT
2161
PROFESSIONAL
LAND SURVEYOR

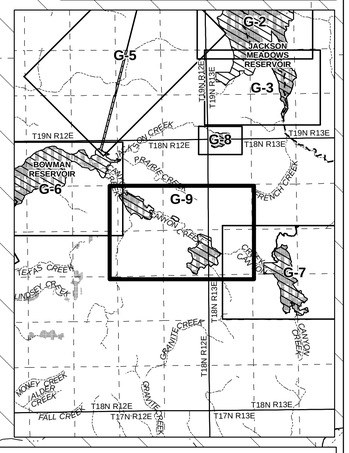
SURVEYORS STATEMENT

THE PURPOSE OF THIS MAP IS TO PROVIDE A GEOREFERENCED VISUAL DEPICTION OF THE LOCATION OF PROJECT FEATURES AND BOUNDARIES BASED ON THE BEST AVAILABLE HISTORICAL DRAWINGS AND DIGITAL REFERENCE SOURCES INCORPORATED INTO THE GEOGRAPHIC INFORMATION SYSTEM (GIS). LOCATIONS HAVE NOT BEEN VERIFIED BY PHYSICAL FIELD SURVEYS AND THIS DRAWING SHOULD NOT BE USED FOR PURPOSES OF DEVELOPING PROPERTY BOUNDARY DESCRIPTIONS.

PROJECT BOUNDARY DEFINED BY CONTOUR 17 FT ABOVE HIGH WATER
PROJECT BOUNDARY DEFINED BY 200 FT BUFFER FROM HIGH WATER
CANYON CREEK
SAWMILL LAKE DAM
SAWMILL SPILLWAY NID
SAWMILL LAKE NORMAL MAXIMUM WATER SURFACE ELEVATION 5,860 FT
PRAIRIE CREEK
PROJECT BOUNDARY DEFINED BY CONTOUR 17 FT ABOVE HIGH WATER
PROJECT BOUNDARY DEFINED BY 200 FT FROM HIGH WATER
FAUCHERIE LAKE RD
CANYON CREEK AREA CAMPGROUND
CANYON CREEK
PRAIRIE CREEK SO SPUR
G9-1
N: 2288307
E: 6957092
G9-2
N: 2289784
E: 6966389
MATCH LINE, G-6
SOUTH FORK CANYON CREEK
T18 N R12E
T18 N R13E
MATCH LINE, G-7
USDA FOREST SERVICE
NID
FAUCHERIE GROUP CAMPGROUND
PROJECT BOUNDARY DEFINED BY 200 FT FROM HIGH WATER
FAUCHERIE SPILLWAY
PROJECT BOUNDARY DEFINED BY CONTOUR 29 FT ABOVE HIGH WATER
FAUCHERIE LAKE DAM
DAY USE/ BOAT LAUNCH
NID
PROJECT BOUNDARY DEFINED BY CONTOUR 29 FT ABOVE HIGH WATER
FAUCHERIE LAKE NORMAL MAXIMUM WATER SURFACE ELEVATION 6,123 FT
PROJECT BOUNDARY DEFINED BY 200 FT FROM HIGH WATER
PROJECT BOUNDARY DEFINED BY CONTOUR 29 FT ABOVE HIGH WATER
NID
NID
G9-3
N: 2281827
E: 6967651

- REFERENCE POINT
- RIVER
- ROAD
- PRIMARY PROJECT ACCESS ROAD
- SECTION LINE
- FERC BOUNDARY
- RESERVOIR

LAND OWNERSHIP
- NEVADA IRRIGATION DISTRICT
- USDA FOREST SERVICE



MAGNETIC DECLINATION = 14.33°, (8-30-2010)
0 500 1,000 2,000 Feet

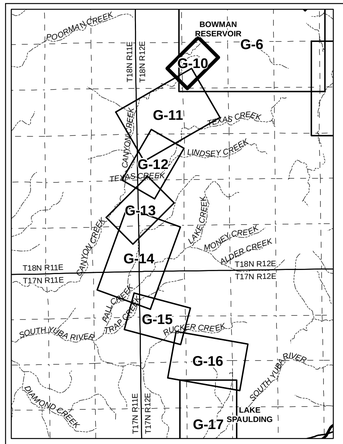
EXHIBIT G-9

PROJECT BOUNDARY MAP
FAUCHERIE & SAWMILL LAKES

YUBA-BEAR HYDROELECTRIC PROJECT (FERC NO. 2266)
NEVADA IRRIGATION DISTRICT, GRASS VALLEY, CALIFORNIA

DATE:	SCALE:	
04-07-2011	1 INCH = 500 FEET	

FERC NO. 2266



T18N R12E

G10-1
N: 2290402
E: 6939716

TRANSMISSION LINE
50' PROJECT WIDTH
25' ON EITHER SIDE
OF CENTERLINE

BOWMAN HOUSE GARAGE

BOWMAN HOUSE

USDA
FOREST
SERVICE

BOWMAN POWERHOUSE ACCESS RD (YBBPH_001)

CANYON CREEK

BOWMAN POWERHOUSE

BOWMAN-SPAULDING DIVERSION DAM

BEGIN CANAL

BEGIN TUNNEL

BOWMAN-SPAULDING 60KV

ROAD
50' PROJECT WIDTH
25' ON EITHER SIDE
OF CENTERLINE

SPILLWAY CHANNEL

BUNKHOUSE RD (YBBNK_001)

ROAD
40' PROJECT WIDTH
20' ON EITHER SIDE
OF CENTERLINE

NID

CANYON CREEK

MATCH LINE G-11

G10-2
N: 2288154
E: 6939754

TRANSMISSION LINE
50' PROJECT WIDTH
25' ON EITHER SIDE
OF CENTERLINE

BEGIN CANAL

GAGE YB-314

CONDUIT
200' PROJECT WIDTH
100' ON EITHER SIDE
OF CENTERLINE

BEGIN TUNNEL

USDA FOREST
SERVICE

MATCH LINE G-11

G10-3
N: 2290841
E: 6942367

BOWMAN SOUTH DAM

BOWMAN SPILLWAY

BOWMAN RESERVOIR

REFERENCE POINT
CANAL
TUNNEL
TRANSMISSION LINE
ROAD
PRIMARY PROJECT ACCESS ROAD
RIVER
SECTION LINE
FERC BOUNDARY
RESERVOIR

LAND OWNERSHIP

NEVADA IRRIGATION DISTRICT
USDA FOREST SERVICE

MAGNETIC DECLINATION 14.35° E (8-30-2010)

0 75 150 300 Feet

REFERENCE COORDINATE METADATA
PROJECTION - STATE PLANE, DATUM - NAD83
ZONE - CA 2, UNITS - U.S. SURVEY FEET
RESERVOIR ELEVATION - NGVD 29

GEOREFERENCE SOURCE DATA
PUBLIC LAND SURVEY SYSTEM FROM THE BUREAU OF LAND MANAGEMENT
CA STATE OFFICE (SEPTEMBER, 2010)
ALL SECTIONS SHOWN ARE IN THE MOUNT DIABLO B&M

BASE MAP DATA SOURCE
ROADS: ESRI 9.3 (TELE ATLAS), RESERVOIR: DIGITIZED FROM USDA NAIP AERIAL IMAGERY,
RIVER: USGS NHD (MODIFIED TO MATCH USDA NAIP AERIAL IMAGERY),
PROJECT FEATURES: DIGITIZED FROM USDA NAIP AERIAL IMAGERY

STATE OF MAINE
STEPHEN W. EVERETT 2161
PROFESSIONAL LAND SURVEYOR

SURVEYORS STATEMENT

THE PURPOSE OF THIS MAP IS TO PROVIDE A GEOREFERENCED VISUAL DEPICTION OF THE LOCATION OF PROJECT FEATURES AND BOUNDARIES BASED ON THE BEST AVAILABLE HISTORICAL DRAWINGS AND DIGITAL REFERENCE SOURCES INCORPORATED INTO THE GEOGRAPHIC INFORMATION SYSTEM (GIS). LOCATIONS HAVE NOT BEEN VERIFIED BY PHYSICAL FIELD SURVEYS AND THIS DRAWING SHOULD NOT BE USED FOR PURPOSES OF DEVELOPING PROPERTY BOUNDARY DESCRIPTIONS.

EXHIBIT G-10

PROJECT BOUNDARY MAP
BOWMAN-SPAULDING CONDUIT & 60KV TRANSMISSION LINE (1 OF 7)

YUBA-BEAR HYDROELECTRIC PROJECT (FERC NO. 2266)
NEVADA IRRIGATION DISTRICT, GRASS VALLEY, CALIFORNIA

DATE:	SCALE:	
03-11-2011	1 INCH = 150 FEET	

REFERENCE COORDINATE METADATA
PROJECTION - STATE PLANE, DATUM - NAD83
ZONE - CA 2, UNITS - U.S. SURVEY FEET
RESERVOIR ELEVATION - NGVD 29

GEOREFERENCE SOURCE DATA
PUBLIC LAND SURVEY SYSTEM FROM THE BUREAU OF LAND MANAGEMENT
CA STATE OFFICE (SEPTEMBER, 2010)
ALL SECTIONS SHOWN ARE IN THE MOUNT DIABLO B&M

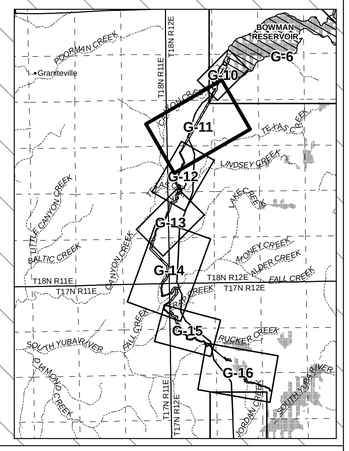
BASE MAP DATA SOURCE
ROADS: ESRI 9.3 (TELE ATLAS), RESERVOIR: DIGITIZED FROM USDA NAIP AERIAL IMAGERY,
RIVER: USGS NHD (MODIFIED TO MATCH USDA NAIP AERIAL IMAGERY),
PROJECT FEATURES: DIGITIZED FROM USDA NAIP AERIAL IMAGERY

STATE OF MAINE
STEPHEN W. EVERETT 2161
PROFESSIONAL LAND SURVEYOR

SURVEYORS STATEMENT

THE PURPOSE OF THIS MAP IS TO PROVIDE A GEOREFERENCED VISUAL DEPICTION OF THE LOCATION OF PROJECT FEATURES AND BOUNDARIES BASED ON THE BEST AVAILABLE HISTORICAL DRAWINGS AND DIGITAL REFERENCE SOURCES INCORPORATED INTO THE GEOGRAPHIC INFORMATION SYSTEM (GIS). LOCATIONS HAVE NOT BEEN VERIFIED BY PHYSICAL FIELD SURVEYS AND THIS DRAWING SHOULD NOT BE USED FOR PURPOSES OF DEVELOPING PROPERTY BOUNDARY DESCRIPTIONS.

CANYON CREEK
TRANSMISSION LINE
50' PROJECT WIDTH
25' ON EITHER SIDE
OF CENTERLINE
BOWMAN-SPAULDING 60KV
BEGIN TUNNEL
CONDUIT
200' PROJECT WIDTH
100' ON EITHER SIDE
OF CENTERLINE
MATCH LINE G-10
MATCH LINE G-10
7 8
18 17
CONDUIT
50' PROJECT WIDTH
25' ON EITHER SIDE
OF CENTERLINE
CONDUIT
200' PROJECT WIDTH
100' ON EITHER SIDE
OF CENTERLINE
G11-3
N: 2285494
E: 6939837
T18N R11E
BOWMAN RD
G11-1
N: 2282801
E: 6935780
13 18
24 19
T18N R12E
USDA FOREST SERVICE
CONDUIT
100' PROJECT WIDTH
70' UPSLOPE AND
30' DOWNSLOPE OF CENTERLINE
USFS 18-21
BEGIN CANAL
MATCH LINE G-12
BOWMAN-SPAULDING BERM ROAD (YBBSC-001)
CONDUIT
115' PROJECT WIDTH
40' UPSLOPE AND
75' DOWNSLOPE OF CENTERLINE
G11-2
N: 2281490
E: 6938613
MATCH LINE G-12
TEXAS CREEK



MAGNETIC DECLINATION 14.35° E (8-30-2010)
0 150 300 600 Feet

- REFERENCE POINT
- CANAL
- TUNNEL
- TRANSMISSION LINE
- ROAD
- PRIMARY PROJECT ACCESS ROAD
- RIVER
- SECTION LINE
- FERC BOUNDARY

LAND OWNERSHIP
- USDA FOREST SERVICE

EXHIBIT G-11

PROJECT BOUNDARY MAP
BOWMAN-SPAULDING CONDUIT & 60KV TRANSMISSION LINE (2 OF 7)

YUBA-BEAR HYDROELECTRIC PROJECT (FERC NO. 2266)
NEVADA IRRIGATION DISTRICT, GRASS VALLEY, CALIFORNIA

DATE:	SCALE:	
03-11-2011	1 INCH = 300 FEET	

FERC NO. 2266

REFERENCE COORDINATE METADATA
PROJECTION - STATE PLANE, DATUM - NAD83
ZONE - CA 2, UNITS - U.S. SURVEY FEET

GEOREFERENCE SOURCE DATA
PUBLIC LAND SURVEY SYSTEM FROM THE BUREAU OF LAND MANAGEMENT
CA STATE OFFICE (SEPTEMBER, 2010)
ALL SECTIONS SHOWN ARE IN THE MOUNT DIABLO B&M

BASE MAP DATA SOURCE
ROADS: ESRI 9.3 (TELE ATLAS), RESERVOIR: DIGITIZED FROM USDA NAIP AERIAL IMAGERY,
RIVER: USGS NHD (MODIFIED TO MATCH USDA NAIP AERIAL IMAGERY),
PROJECT FEATURES: DIGITIZED FROM USDA NAIP AERIAL IMAGERY

STATE OF MAINE
STEPHEN W. EVERETT 2161
PROFESSIONAL LAND SURVEYOR

SURVEYORS STATEMENT

THE PURPOSE OF THIS MAP IS TO PROVIDE A GEOREFERENCED VISUAL DEPICTION OF THE LOCATION OF PROJECT FEATURES AND BOUNDARIES BASED ON THE BEST AVAILABLE HISTORICAL DRAWINGS AND DIGITAL REFERENCE SOURCES INCORPORATED INTO THE GEOGRAPHIC INFORMATION SYSTEM (GIS). LOCATIONS HAVE NOT BEEN VERIFIED BY PHYSICAL FIELD SURVEYS AND THIS DRAWING SHOULD NOT BE USED FOR PURPOSES OF DEVELOPING PROPERTY BOUNDARY DESCRIPTIONS.

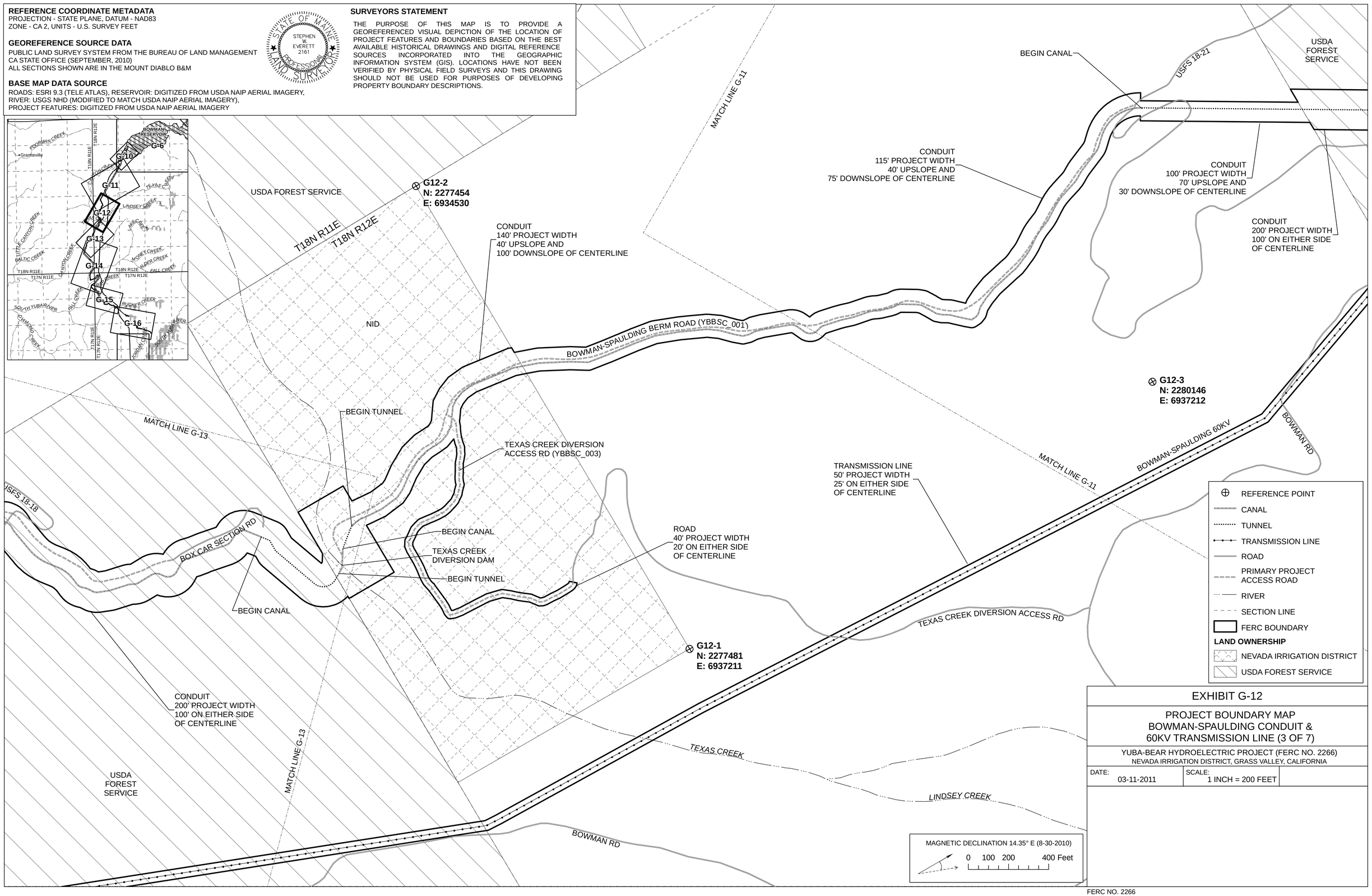


EXHIBIT G-12

PROJECT BOUNDARY MAP
BOWMAN-SPAULDING CONDUIT & 60KV TRANSMISSION LINE (3 OF 7)

YUBA-BEAR HYDROELECTRIC PROJECT (FERC NO. 2266)
NEVADA IRRIGATION DISTRICT, GRASS VALLEY, CALIFORNIA

DATE:	SCALE:	
03-11-2011	1 INCH = 200 FEET	

FERC NO. 2266

REFERENCE COORDINATE METADATA
PROJECTION - STATE PLANE, DATUM - NAD83
ZONE - CA 2, UNITS - U.S. SURVEY FEET

GEOREFERENCE SOURCE DATA
PUBLIC LAND SURVEY SYSTEM FROM THE BUREAU OF LAND MANAGEMENT
CA STATE OFFICE (SEPTEMBER, 2010)
ALL SECTIONS SHOWN ARE IN THE MOUNT DIABLO B&M

BASE MAP DATA SOURCE
ROADS: ESRI 9.3 (TELE ATLAS), RESERVOIR: DIGITIZED FROM USDA NAIP AERIAL IMAGERY,
RIVER: USGS NHD (MODIFIED TO MATCH USDA NAIP AERIAL IMAGERY),
PROJECT FEATURES: DIGITIZED FROM USDA NAIP AERIAL IMAGERY

STATE OF MAINE
STEPHEN W. EVERETT 2161
PROFESSIONAL LAND SURVEYOR

SURVEYORS STATEMENT

THE PURPOSE OF THIS MAP IS TO PROVIDE A GEOREFERENCED VISUAL DEPICTION OF THE LOCATION OF PROJECT FEATURES AND BOUNDARIES BASED ON THE BEST AVAILABLE HISTORICAL DRAWINGS AND DIGITAL REFERENCE SOURCES INCORPORATED INTO THE GEOGRAPHIC INFORMATION SYSTEM (GIS). LOCATIONS HAVE NOT BEEN VERIFIED BY PHYSICAL FIELD SURVEYS AND THIS DRAWING SHOULD NOT BE USED FOR PURPOSES OF DEVELOPING PROPERTY BOUNDARY DESCRIPTIONS.

G13-1
N: 2274785
E: 6934579

BEGIN CANAL

NID

TEXAS CREEK

CONDUIT
130' PROJECT WIDTH
50' UPSLOPE AND
80' DOWNSLOPE OF CENTERLINE

USFS 18-18

CONDUIT
200' PROJECT WIDTH
100' ON EITHER SIDE
OF CENTERLINE

MATCH LINE, G-12

G13-3
N: 2272075
E: 6933241

MATCH LINE, G-14

BOX CAR SECTION RD (YBBSC 004)

MATCH LINE, G-14

USDA FOREST SERVICE

CONDUIT
200' PROJECT WIDTH
100' ON EITHER SIDE
OF CENTERLINE

G13-2
N: 2273465
E: 6935890

USFS 18-18-01

TRANSMISSION LINE
50' PROJECT WIDTH
25' ON EITHER SIDE
OF CENTERLINE

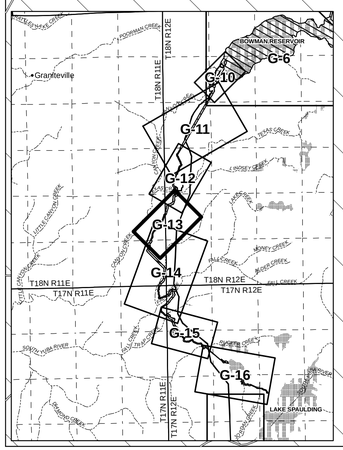
BOWMAN RD

USDA
FOREST
SERVICE

25 30
36 31

T18N R11E
T18N R12E

BOWMAN-SPAULDING
60KV



MAGNETIC DECLINATION 14.35° E (8-30-2010)
0 100 200 400 Feet

- REFERENCE POINT
- CANAL
- TUNNEL
- TRANSMISSION LINE
- ROAD
- PRIMARY PROJECT ACCESS ROAD
- RIVER
- SECTION LINE
- FERC BOUNDARY

LAND OWNERSHIP
- NEVADA IRRIGATION DISTRICT
- USDA FOREST SERVICE

EXHIBIT G-13

PROJECT BOUNDARY MAP
BOWMAN-SPAULDING CONDUIT & 60KV TRANSMISSION LINE (4 OF 7)

YUBA-BEAR HYDROELECTRIC PROJECT (FERC NO. 2266)
NEVADA IRRIGATION DISTRICT, GRASS VALLEY, CALIFORNIA

DATE:	SCALE:	
03-11-2011	1 INCH = 200 FEET	

FERC NO. 2266

REFERENCE COORDINATE METADATA
PROJECTION - STATE PLANE, DATUM - NAD83
ZONE - CA 2, UNITS - U.S. SURVEY FEET

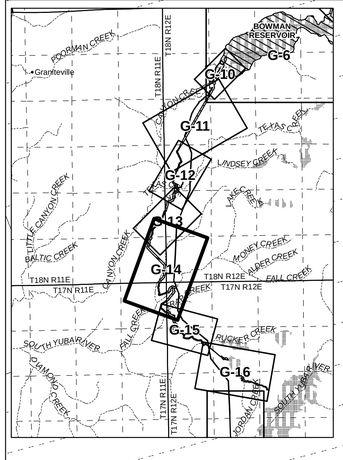
GEOREFERENCE SOURCE DATA
PUBLIC LAND SURVEY SYSTEM FROM THE BUREAU OF LAND MANAGEMENT
CA STATE OFFICE (SEPTEMBER, 2010)
ALL SECTIONS SHOWN ARE IN THE MOUNT DIABLO B&M

BASE MAP DATA SOURCE
ROADS: ESRI 9.3 (TELE ATLAS), RESERVOIR: DIGITIZED FROM USDA NAIP AERIAL IMAGERY,
RIVER: USGS NHD (MODIFIED TO MATCH USDA NAIP AERIAL IMAGERY),
PROJECT FEATURES: DIGITIZED FROM USDA NAIP AERIAL IMAGERY

STATE OF MAINE
STEPHEN W. EVERETT 2161
PROFESSIONAL LAND SURVEYOR

SURVEYORS STATEMENT

THE PURPOSE OF THIS MAP IS TO PROVIDE A GEOREFERENCED VISUAL DEPICTION OF THE LOCATION OF PROJECT FEATURES AND BOUNDARIES BASED ON THE BEST AVAILABLE HISTORICAL DRAWINGS AND DIGITAL REFERENCE SOURCES INCORPORATED INTO THE GEOGRAPHIC INFORMATION SYSTEM (GIS). LOCATIONS HAVE NOT BEEN VERIFIED BY PHYSICAL FIELD SURVEYS AND THIS DRAWING SHOULD NOT BE USED FOR PURPOSES OF DEVELOPING PROPERTY BOUNDARY DESCRIPTIONS.



BEGIN CLEAR CREEK TUNNEL

CONDUIT
200' PROJECT WIDTH
100' ON EITHER SIDE
OF CENTERLINE

BOX CAR SECTION RD (YBBSC_004)

CONDUIT
130' PROJECT WIDTH
50' UPSLOPE AND
80' DOWNSLOPE
OF CENTERLINE

USDA
FOREST SERVICE

USFS 18-18-01

USFS 18-18

36 25
31 30

T18N R11E
T17N R11E

BEGIN CANAL

USFS 18-14-02

G14-1
N: 2265439
E: 6933373

PG&E

MATCH LINE G-13

USFS 18-14

CLEAR CREEK

CHRISTMAS TREE
WASTEWAY

BOWMAN SPAULDING BERM RD (YBBSC_006)

T18N R11E
T18N R12E

CLEAR CREEK DIVERSION
AND WASTEWAY

USDA FOREST SERVICE

BOWMAN-SPAULDING60KV

G14-3
N: 2269471
E: 6935946

FALL CREEK

CONDUIT
110' PROJECT WIDTH
40' UPSLOPE AND
70' DOWNSLOPE OF CENTERLINE

11E23

CONDUIT
115' PROJECT WIDTH
45' UPSLOPE AND
70' DOWNSLOPE
OF CENTERLINE

1 36
6 31

CONDUIT
200' PROJECT WIDTH
100' ON EITHER SIDE
OF CENTERLINE

MATCH LINE G-15

T17N R11E
T17N R12E

BEGIN FLUME

BOWMAN RD

USFS 18-14

TRANSMISSION LINE
50' PROJECT WIDTH
25' ON EITHER SIDE
OF CENTERLINE

BOWMAN-SPAULDING BERM RD (YBBSC_006)

TRAP CREEK DIVERSION
AND WASTEWAY

TRAP CREEK

MATCH LINE G-15

BEGIN CANAL

FALL CREEK

FALL CREEK
DIVERSION DAM

T18N R12E
T17N R12E

CONDUIT
200' PROJECT WIDTH
100' ON EITHER SIDE
OF CENTERLINE

GROUSE RIDGE RD

G14-2
N: 2265500
E: 6937313

MAGNETIC DECLINATION 14.35° E (8-30-2010)
0 150 300 600 Feet

- REFERENCE POINT
- CANAL
- FLUME
- TUNNEL
- TRANSMISSION LINE
- ROAD
- PRIMARY PROJECT ACCESS ROAD
- RIVER
- SECTION LINE
- FERC BOUNDARY

LAND OWNERSHIP
- PACIFIC GAS & ELECTRIC COMPANY
- USDA FOREST SERVICE

EXHIBIT G-14

PROJECT BOUNDARY MAP
BOWMAN-SPAULDING CONDUIT & 60KV TRANSMISSION LINE (5 OF 7)

YUBA-BEAR HYDROELECTRIC PROJECT (FERC NO. 2266)
NEVADA IRRIGATION DISTRICT, GRASS VALLEY, CALIFORNIA

DATE:	SCALE:	
03-11-2011	1 INCH = 300 FEET	

FERC NO. 2266

REFERENCE COORDINATE METADATA
PROJECTION - STATE PLANE, DATUM - NAD83
ZONE - CA 2, UNITS - U.S. SURVEY FEET

GEOREFERENCE SOURCE DATA
PUBLIC LAND SURVEY SYSTEM FROM THE BUREAU OF LAND MANAGEMENT
CA STATE OFFICE (SEPTEMBER, 2010)
ALL SECTIONS SHOWN ARE IN THE MOUNT DIABLO B&M

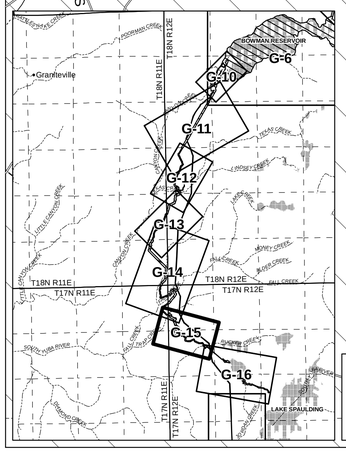
BASE MAP DATA SOURCE
ROADS: ESRI 9.3 (TELE ATLAS), RESERVOIR: DIGITIZED FROM USDA NAIP AERIAL IMAGERY,
RIVER: USGS NHD (MODIFIED TO MATCH USDA NAIP AERIAL IMAGERY),
PROJECT FEATURES: DIGITIZED FROM USDA NAIP AERIAL IMAGERY

STATE OF MAINE
STEPHEN W. EVERETT
2161
PROFESSIONAL
LAND SURVEYOR

SURVEYORS STATEMENT

THE PURPOSE OF THIS MAP IS TO PROVIDE A GEOREFERENCED VISUAL DEPICTION OF THE LOCATION OF PROJECT FEATURES AND BOUNDARIES BASED ON THE BEST AVAILABLE HISTORICAL DRAWINGS AND DIGITAL REFERENCE SOURCES INCORPORATED INTO THE GEOGRAPHIC INFORMATION SYSTEM (GIS). LOCATIONS HAVE NOT BEEN VERIFIED BY PHYSICAL FIELD SURVEYS AND THIS DRAWING SHOULD NOT BE USED FOR PURPOSES OF DEVELOPING PROPERTY BOUNDARY DESCRIPTIONS.

TRAP CREEK
CONDUIT
110' PROJECT WIDTH
40' UPSLOPE AND
70' DOWNSLOPE OF CENTERLINE
TRAP CREEK DIVERSION AND WASTEWAY
BOWMAN-SPAULDING 60KV
11E23
MATCH LINE G-14
USDA FOREST SERVICE
TRANSMISSION LINE
50' PROJECT WIDTH
25' ON EITHER SIDE
OF CENTERLINE
0018-008
G15-3
N: 2261476
E: 6934780
MATCH LINE G-14
11E23
BOWMAN SPAULDING BERM RD (YBBSC_006)
USFS 18-12
PG&E
T17N R12E
T17N R11E
1
6
12
7
G15-1
N: 2260246
E: 6938770
6
5
7
8
STEEL BRIDGE RD
CANAL
CONDUIT
115' PROJECT WIDTH
45' UPSLOPE AND
70' DOWNSLOPE OF CENTERLINE
BOWMAN RD
BOWMAN-SPAULDING 60KV
RUCKER LAKE RD
RUCKER CREEK DIVERSION
AND WASTEWAY
CONDUIT
25' PROJECT WIDTH
12.5' ON EITHER SIDE
OF CENTERLINE
PG&E
BEGIN
TUNNEL
MATCH LINE G-16
USFS 18-12-1
USDA FOREST SERVICE
CONDUIT
200' PROJECT WIDTH
100' ON EITHER SIDE
OF CENTERLINE
RUCKER CREEK
ROAD
40' PROJECT WIDTH
20' ON EITHER SIDE
OF CENTERLINE
G15-2
N: 2258815
E: 6934820



MAGNETIC DECLINATION 14.35° E (8-30-2010)
0 100 200 400 Feet

REFERENCE POINT
CANAL
TUNNEL
TRANSMISSION LINE
ROAD
PRIMARY PROJECT ACCESS ROAD
RIVER
SECTION LINE
FERC BOUNDARY
LAND OWNERSHIP
PACIFIC GAS & ELECTRIC COMPANY
USDA FOREST SERVICE

EXHIBIT G-15

PROJECT BOUNDARY MAP
BOWMAN-SPAULDING CONDUIT & 60KV TRANSMISSION LINE (6 OF 7)

YUBA-BEAR HYDROELECTRIC PROJECT (FERC NO. 2266)
NEVADA IRRIGATION DISTRICT, GRASS VALLEY, CALIFORNIA

DATE:	SCALE:	
03-11-2011	1 INCH = 200 FEET	

FERC NO. 2266

REFERENCE COORDINATE METADATA
PROJECTION - STATE PLANE, DATUM - NAD83
ZONE - CA 2, UNITS - U.S. SURVEY FEET

GEOREFERENCE SOURCE DATA
PUBLIC LAND SURVEY SYSTEM FROM THE BUREAU OF LAND MANAGEMENT
CA STATE OFFICE (SEPTEMBER, 2010)
ALL SECTIONS SHOWN ARE IN THE MOUNT DIABLO B&M

BASE MAP DATA SOURCE
ROADS: ESRI 9.3 (TELE ATLAS), RESERVOIR: DIGITIZED FROM USDA NAIP AERIAL IMAGERY,
RIVER: USGS NHD (MODIFIED TO MATCH USDA NAIP AERIAL IMAGERY),
PROJECT FEATURES: DIGITIZED FROM USDA NAIP AERIAL IMAGERY

STATE OF MAINE
STEPHEN W. EVERETT 2161
PROFESSIONAL LAND SURVEYOR

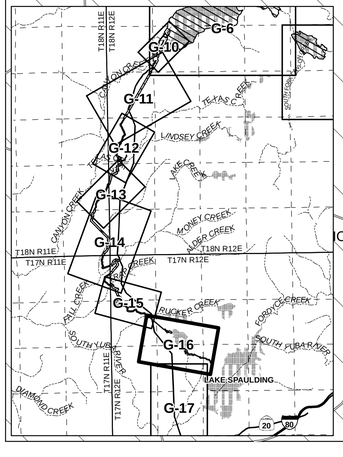
SURVEYORS STATEMENT

THE PURPOSE OF THIS MAP IS TO PROVIDE A GEOREFERENCED VISUAL DEPICTION OF THE LOCATION OF PROJECT FEATURES AND BOUNDARIES BASED ON THE BEST AVAILABLE HISTORICAL DRAWINGS AND DIGITAL REFERENCE SOURCES INCORPORATED INTO THE GEOGRAPHIC INFORMATION SYSTEM (GIS). LOCATIONS HAVE NOT BEEN VERIFIED BY PHYSICAL FIELD SURVEYS AND THIS DRAWING SHOULD NOT BE USED FOR PURPOSES OF DEVELOPING PROPERTY BOUNDARY DESCRIPTIONS.

MAGNETIC DECLINATION 14.33° E (8-30-2010)
0 125 250 500 Feet

T17N R12E

RUCKER CREEK
PG&E
BEGIN TUNNEL
RUCKER CREEK DIVERSION AND WASTEWAY
BOWMAN RD
CONDUIT
25' PROJECT WIDTH
12.5' ON EITHER SIDE
OF CENTERLINE
USDA FOREST SERVICE
GOLDEN SHEEN WAY
MATCH LINE G-15
USFS 18-04
FULLER LAKE DAY USE AREA
G16-2
N: 2256309
E: 6941519
FULLER LAKE (PG&E)
USDA FOREST SERVICE
BOWMAN-SPAULDING 60KV
BOWMAN RD
FULLER LAKE DAM (PG&E)
BEGIN CANAL
FULLER LAKE SPILLWAY (PG&E)
TRANSMISSION LINE
50' PROJECT WIDTH
25' ON EITHER SIDE
OF CENTERLINE
USDA FOREST SERVICE
ROAD
40' PROJECT WIDTH
20' ON EITHER SIDE
OF CENTERLINE
TRAIL PARKING
CANAL ACCESS RD (YBZION_001)
G16-3
N: 2253641
E: 6941564
MATCH LINE G-17
PG&E
G16-1
N: 2255065
E: 6944244
CONDUIT
130' PROJECT WIDTH
50' UPSLOPE AND
80' DOWNSLOPE OF CENTERLINE
CONDUIT
50' PROJECT WIDTH
30' ON NORTH SIDE AND
20' ON SOUTH SIDE OF CENTERLINE
CONDUIT
100' PROJECT WIDTH
40' UPSLOPE AND
70' DOWNSLOPE OF CENTERLINE
CONDUIT
50' PROJECT WIDTH
25' ON EITHER SIDE
OF CENTERLINE
CONDUIT
80' PROJECT WIDTH
30' UPSLOPE AND
50' DOWNSLOPE OF CENTERLINE
BEGIN TUNNEL
BEGIN CANAL
BEGIN CANAL
BEGIN PENSTOCK
(SPAULDING NO. 3, PG&E)
GAGE
YB-14
12E40
JORDAN CREEK
BEGIN SIPHON
JORDAN CREEK
SIPHON
JORDAN WASTEWAY



REFERENCE POINT
CANAL
PENSTOCK
SIPHON
TUNNEL
TRANSMISSION LINE
ROAD
PRIMARY PROJECT ACCESS ROAD
RIVER
SECTION LINE
FERC BOUNDARY
RESERVOIR
COUNTY LINE

LAND OWNERSHIP
PACIFIC GAS & ELECTRIC COMPANY
USDA FOREST SERVICE

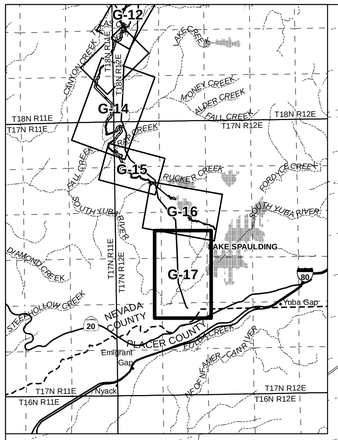
EXHIBIT G-16

PROJECT BOUNDARY MAP
BOWMAN-SPAULDING CONDUIT & 60KV TRANSMISSION LINE (7 OF 7)

YUBA-BEAR HYDROELECTRIC PROJECT (FERC NO. 2266)
NEVADA IRRIGATION DISTRICT, GRASS VALLEY, CALIFORNIA

DATE:	SCALE:	
03-11-2011	1 INCH = 250 FEET	

FERC NO. 2266



T17N R12E

16 21
17 20

LAKE SPAULDING (PG&E)

LAKE SPAULDING RD

LAKE SPAULDING DAM

SOUTH YUBA RIVER

PG&E

JORDAN CREEK

SPAULDING-SUMMIT 60KV

DRUM-SUMMIT #1, #2 115KV

MATCH LINE, G-16

G17-1
N: 2250992
E: 6942923

G17-2
N: 2245715
E: 6944276

NID

BOWMAN RD

BOWMAN-SPAULDING 60KV

G17-3
N: 2244315
E: 6941647

TRANSMISSION LINE
50' PROJECT WIDTH
25' ON EITHER SIDE
OF CENTERLINE

USDA FOREST SERVICE

17 20
18 19

USDA FOREST SERVICE

REFERENCE COORDINATE METADATA
PROJECTION - STATE PLANE, DATUM - NAD83
ZONE - CA 2, UNITS - U.S. SURVEY FEET

GEOREFERENCE SOURCE DATA
PUBLIC LAND SURVEY SYSTEM FROM THE BUREAU OF LAND MANAGEMENT
CA STATE OFFICE (SEPTEMBER, 2010)
ALL SECTIONS SHOWN ARE IN THE MOUNT DIABLO B&M

BASE MAP DATA SOURCE
ROADS: ESRI 9.3 (TELE ATLAS), RESERVOIR: DIGITIZED FROM USDA NAIP AERIAL IMAGERY,
RIVER: USGS NHD (MODIFIED TO MATCH USDA NAIP AERIAL IMAGERY),
PROJECT FEATURES: DIGITIZED FROM USDA NAIP AERIAL IMAGERY

STATE OF MAINE
STEPHEN W. EVERETT 2161
PROFESSIONAL LAND SURVEYOR

SURVEYORS STATEMENT

THE PURPOSE OF THIS MAP IS TO PROVIDE A GEOREFERENCED VISUAL DEPICTION OF THE LOCATION OF PROJECT FEATURES AND BOUNDARIES BASED ON THE BEST AVAILABLE HISTORICAL DRAWINGS AND DIGITAL REFERENCE SOURCES INCORPORATED INTO THE GEOGRAPHIC INFORMATION SYSTEM (GIS). LOCATIONS HAVE NOT BEEN VERIFIED BY PHYSICAL FIELD SURVEYS AND THIS DRAWING SHOULD NOT BE USED FOR PURPOSES OF DEVELOPING PROPERTY BOUNDARY DESCRIPTIONS.

MAGNETIC DECLINATION 14.33° E (8-30-2010)

0 150 300 600 Feet

- REFERENCE POINT
- TRANSMISSION LINE
- ROAD
- PRIMARY PROJECT ACCESS ROAD
- RIVER
- SECTION LINE
- FERC BOUNDARY
- RESERVOIR

LAND OWNERSHIP

- NEVADA IRRIGATION DISTRICT
- PACIFIC GAS & ELECTRIC COMPANY
- USDA FOREST SERVICE

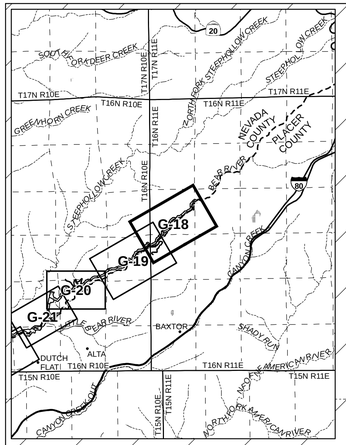
EXHIBIT G-17

PROJECT BOUNDARY MAP
60KV TRANSMISSION LINE

YUBA-BEAR HYDROELECTRIC PROJECT (FERC NO. 2266)
NEVADA IRRIGATION DISTRICT, GRASS VALLEY, CALIFORNIA

DATE:	SCALE:	
03-11-2011	1 INCH = 300 FEET	

FERC NO. 2266



REFERENCE COORDINATE METADATA

PROJECTION - STATE PLANE, DATUM - NAD83
ZONE - CA 2, UNITS - U.S. SURVEY FEET

GEOREFERENCE SOURCE DATA

PUBLIC LAND SURVEY SYSTEM FROM THE BUREAU OF LAND MANAGEMENT
CA STATE OFFICE (SEPTEMBER, 2010)
ALL SECTIONS SHOWN ARE IN THE MOUNT DIABLO B&M

BASE MAP DATA SOURCE

ROADS: ESRI 9.3 (TELE ATLAS), RESERVOIR: DIGITIZED FROM USDA NAIP AERIAL IMAGERY,
RIVER: USGS NHD (MODIFIED TO MATCH USDA NAIP AERIAL IMAGERY),
PROJECT FEATURES: DIGITIZED FROM USDA NAIP AERIAL IMAGERY

STATE OF MAINE
STEPHEN W. EVERETT 2161
PROFESSIONAL LAND SURVEYOR

SURVEYORS STATEMENT

THE PURPOSE OF THIS MAP IS TO PROVIDE A GEOREFERENCED VISUAL DEPICTION OF THE LOCATION OF PROJECT FEATURES AND BOUNDARIES BASED ON THE BEST AVAILABLE HISTORICAL DRAWINGS AND DIGITAL REFERENCE SOURCES INCORPORATED INTO THE GEOGRAPHIC INFORMATION SYSTEM (GIS). LOCATIONS HAVE NOT BEEN VERIFIED BY PHYSICAL FIELD SURVEYS AND THIS DRAWING SHOULD NOT BE USED FOR PURPOSES OF DEVELOPING PROPERTY BOUNDARY DESCRIPTIONS.

G18-1
N: 2221283
E: 6907151

CONDUIT
200' PROJECT WIDTH
100' ON EITHER SIDE
OF CENTERLINE

BEGIN TUNNEL

BEGIN CONCRETE BOX FLUME

DUTCH FLAT NO.2
FLUME INTAKE

GAGING STATION
YB-238

DRUM AFTERBAY
(PG&E)

DUTCH FLAT NO. 2
CONDUIT INTAKE ACCESS RD
(YBDFI_001)

SPILLWAY TO
BEAR RIVER

ROAD
30' PROJECT WIDTH
15' ON EITHER SIDE
OF CENTERLINE

BUREAU
OF LAND
MANAGEMENT

USDA
FOREST SERVICE

G18-2
N: 2218621
E: 6903284

T16N R10E
T16N R11E

MATCH LINE, G-19

13
18
24
19

USDA
FOREST
SERVICE

NID

BEAR RIVER

NEVADA COUNTY
PLACER COUNTY

ROAD
40' PROJECT WIDTH
20' ON EITHER SIDE
OF CENTERLINE

"B" ALARM RD (YBBAL_001)

DRUM POWERHOUSE RD

PG&E

G18-3
N: 2217339
E: 6907198

DRUM POWERHOUSE RD

PG&E

MAGNETIC DECLINATION = 14.33° E (8-30-2010)
0 250 500 1,000 Feet

- REFERENCE POINT
- FLUME
- TUNNEL
- ROAD
- PRIMARY PROJECT ACCESS ROAD
- RIVER
- SECTION LINE
- FERC BOUNDARY
- COUNTY LINE

LAND OWNERSHIP

- NEVADA IRRIGATION DISTRICT
- PACIFIC GAS & ELECTRIC COMPANY
- BUREAU OF LAND MANAGEMENT
- USDA FOREST SERVICE

EXHIBIT G-18

PROJECT BOUNDARY MAP
DUTCH FLAT NO. 2 CONDUIT (1 of 3)

YUBA-BEAR HYDROELECTRIC PROJECT (FERC NO. 2266)
NEVADA IRRIGATION DISTRICT, GRASS VALLEY, CALIFORNIA

DATE:	SCALE:	
03-11-2011	1 INCH = 250 FEET	

FERC NO. 2266

MAGNETIC DECLINATION = 14.33° E (8-31-2010)

0 250 500 1,000 Feet

PG&E

G19-2
N: 2214347
E: 6898392

G19-1
N: 2215757
E: 6900969

BUREAU OF LAND MANAGEMENT

MATCH LINE, G-18

MATCH LINE, G-20

CONCRETE BOX FLUME

CONDUIT
200' PROJECT WIDTH
100' ON EITHER SIDE
OF CENTERLINE

NID

"B" ALARM RD (YBBAL 001)

NEVADA COUNTY
PLACER COUNTY

BEAR RIVER

ROAD
40' PROJECT WIDTH
20' ON EITHER SIDE
OF CENTERLINE

BUREAU OF
LAND MANAGEMENT

USDA FOREST SERVICE

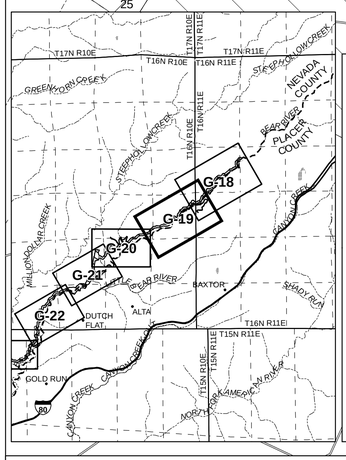
T16N R10E
T16N R11E

"B" ALARM RD (YBBAL 001)

DRUM POWERHOUSE RD

PG&E

G19-3
N: 2211960
E: 6900845



- REFERENCE POINT
- FLUME
- ROAD
- PRIMARY PROJECT ACCESS ROAD
- RIVER
- SECTION LINE
- FERC BOUNDARY
- COUNTY LINE

LAND OWNERSHIP

- NEVADA IRRIGATION DISTRICT
- PACIFIC GAS & ELECTRIC COMPANY
- BUREAU OF LAND MANAGEMENT
- USDA FOREST SERVICE

REFERENCE COORDINATE METADATA

PROJECTION - STATE PLANE, DATUM - NAD83
ZONE - CA 2, UNITS - U.S. SURVEY FEET

GEOREFERENCE SOURCE DATA

PUBLIC LAND SURVEY SYSTEM FROM THE BUREAU OF LAND MANAGEMENT
CA STATE OFFICE (SEPTEMBER, 2010)
ALL SECTIONS SHOWN ARE IN THE MOUNT DIABLO B&M

BASE MAP DATA SOURCE

ROADS: ESRI 9.3 (TELE ATLAS), RESERVOIR: DIGITIZED FROM USDA NAIP AERIAL IMAGERY,
RIVER: USGS NHD (MODIFIED TO MATCH USDA NAIP AERIAL IMAGERY),
PROJECT FEATURES: DIGITIZED FROM USDA NAIP AERIAL IMAGERY

STATE OF MAINE
STEPHEN W. EVERETT 2161
PROFESSIONAL LAND SURVEYOR

SURVEYORS STATEMENT

THE PURPOSE OF THIS MAP IS TO PROVIDE A GEOREFERENCED VISUAL DEPICTION OF THE LOCATION OF PROJECT FEATURES AND BOUNDARIES BASED ON THE BEST AVAILABLE HISTORICAL DRAWINGS AND DIGITAL REFERENCE SOURCES INCORPORATED INTO THE GEOGRAPHIC INFORMATION SYSTEM (GIS). LOCATIONS HAVE NOT BEEN VERIFIED BY PHYSICAL FIELD SURVEYS AND THIS DRAWING SHOULD NOT BE USED FOR PURPOSES OF DEVELOPING PROPERTY BOUNDARY DESCRIPTIONS.

EXHIBIT G-19

PROJECT BOUNDARY MAP
DUTCH FLAT NO. 2 CONDUIT (2 OF 3)

YUBA-BEAR HYDROELECTRIC PROJECT (FERC NO. 2266)
NEVADA IRRIGATION DISTRICT, GRASS VALLEY, CALIFORNIA

DATE:	SCALE:	
03-11-2011	1 INCH = 250 FEET	

FERC NO. 2266

REFERENCE COORDINATE METADATA
PROJECTION - STATE PLANE, DATUM - NAD83
ZONE - CA 2, UNITS - U.S. SURVEY FEET
RESERVOIR ELEVATION - NGVD 29

GEOREFERENCE SOURCE DATA
PUBLIC LAND SURVEY SYSTEM FROM THE BUREAU OF LAND MANAGEMENT
CA STATE OFFICE (SEPTEMBER, 2010)
ALL SECTIONS SHOWN ARE IN THE MOUNT DIABLO B&M

BASE MAP DATA SOURCE
ROADS: ESRI 9.3 (TELE ATLAS), RESERVOIR: DIGITIZED FROM USDA NAIP AERIAL IMAGERY,
RIVER: USGS NHD (MODIFIED TO MATCH USDA NAIP AERIAL IMAGERY),
PROJECT FEATURES: DIGITIZED FROM USDA NAIP AERIAL IMAGERY

STATE OF MAINE
STEPHEN W. EVERETT 2161
PROFESSIONAL LAND SURVEYOR

SURVEYORS STATEMENT

THE PURPOSE OF THIS MAP IS TO PROVIDE A GEOREFERENCED VISUAL DEPICTION OF THE LOCATION OF PROJECT FEATURES AND BOUNDARIES BASED ON THE BEST AVAILABLE HISTORICAL DRAWINGS AND DIGITAL REFERENCE SOURCES INCORPORATED INTO THE GEOGRAPHIC INFORMATION SYSTEM (GIS). LOCATIONS HAVE NOT BEEN VERIFIED BY PHYSICAL FIELD SURVEYS AND THIS DRAWING SHOULD NOT BE USED FOR PURPOSES OF DEVELOPING PROPERTY BOUNDARY DESCRIPTIONS.

T16N R10E

22 23 26

G20-2
N: 2211983
E: 6892595

PG&E

(2) DRUM-HALSEY JUNCTION 115KV

LOWELL HILL RD

STUMP CANYON INTAKE ACCESS RD (YBSCS_001)

BEGIN CANAL

DUTCH FLAT NO. 2 FOREBAY
NORMAL MAXIMUM WATER
SURFACE ELEVATION 3,330.0 FT

NID

CONDUIT
200' PROJECT WIDTH
100' ON EITHER SIDE
OF CENTERLINE

STUMP CANYON SIPHON
LOW LEVEL VALVE
ACCESS ROAD
(YBSCS_002)

ROAD
50' PROJECT WIDTH
25' ON EITHER SIDE
OF CENTERLINE

PG&E

CONDUIT
200' PROJECT WIDTH
100' ON EITHER SIDE
OF CENTERLINE

BUREAU OF LAND MANAGEMENT

G20-3
N: 2211973
E: 6896750

MATCH LINE: G-19

STUMP CANYON WASTEWAY

BEGIN STUMP CANYON SIPHON

USDA FOREST SERVICE

6018-001

NID

PROJECT BOUNDARY
DEFINED BY CONTOUR
20 FEET ABOVE HIGH WATER

STUMP CANYON SIPHON OUTLET ACCESS RD (YBSCS_003)

DIGGINS HILL RD

USDA FOREST SERVICE

NEVADA COUNTY
PLACER COUNTY

PROJECT BOUNDARY
DEFINED BY
CONTOUR 20 FEET
ABOVE HIGH WATER

BEAR RIVER

DUTCH FLAT NO. 2
FOREBAY SPILLWAY

G20-1
N: 2209314
E: 6894030

MATCH LINE: G-21

PG&E

BUREAU
OF LAND MANAGEMENT

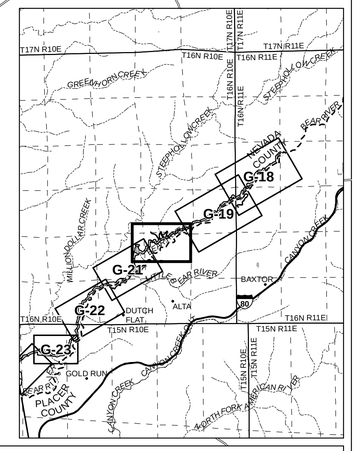
SPILLWAY CHANNEL

CONDUIT
200' PROJECT WIDTH
100' ON EITHER SIDE
OF CENTERLINE

BEAR RIVER

NEVADA COUNTY
PLACER COUNTY

USDA FOREST SERVICE



- REFERENCE POINT
- CANAL
- FLUME
- PENSTOCK
- SIPHON
- TRANSMISSION LINE
- ROAD
- PRIMARY PROJECT ACCESS ROAD
- RIVER
- SECTION LINE
- FERC BOUNDARY
- RESERVOIR
- COUNTY LINE

LAND OWNERSHIP

- NEVADA IRRIGATION DISTRICT
- PACIFIC GAS & ELECTRIC COMPANY
- BUREAU OF LAND MANAGEMENT
- USDA FOREST SERVICE

MAGNETIC DECLINATION = 14.33° (8-31-2010)

0 200 400 800 Feet

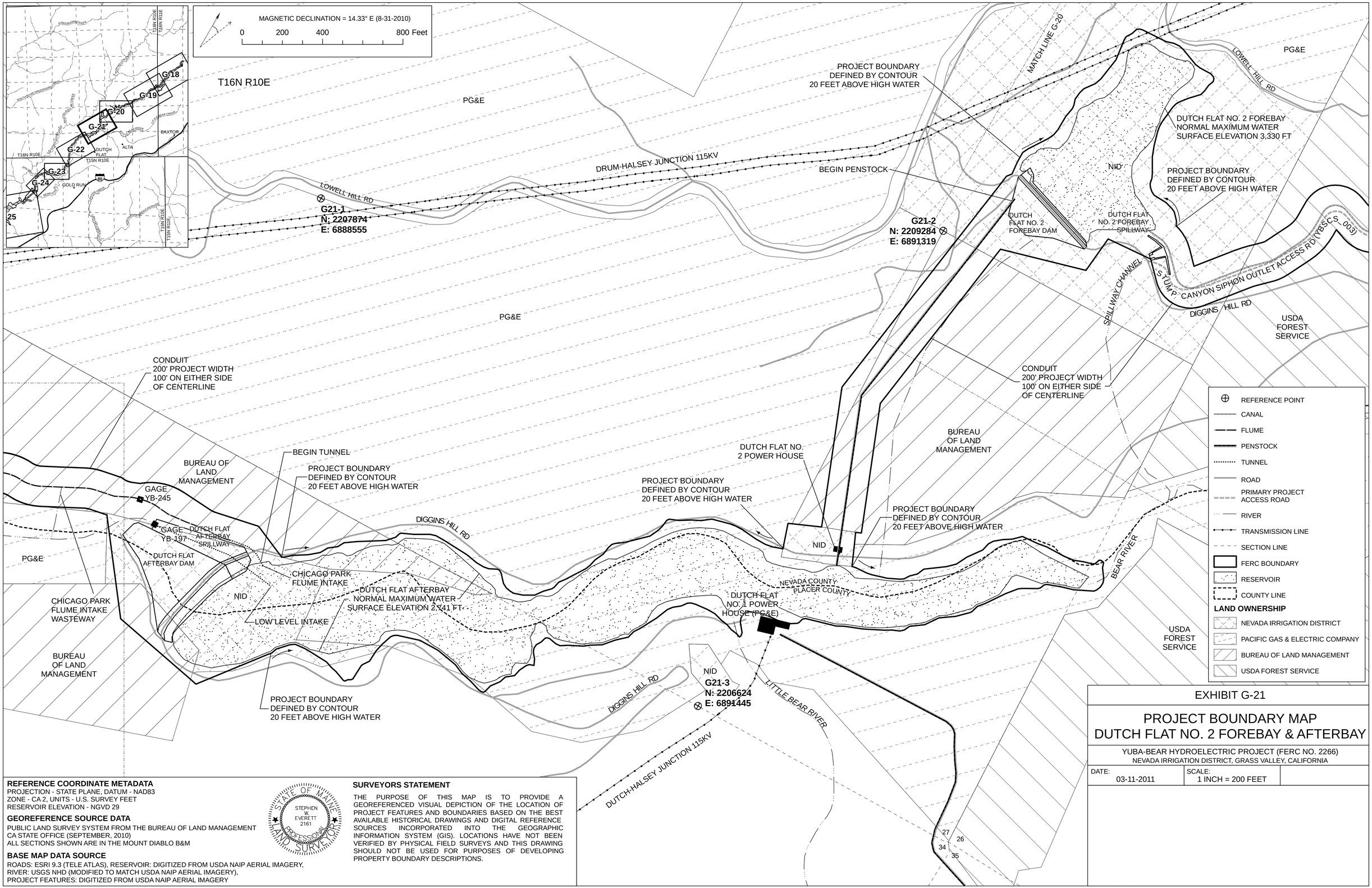
EXHIBIT G-20

PROJECT BOUNDARY MAP
DUTCH FLAT NO.2 CONDUIT (3 of 3)

YUBA-BEAR HYDROELECTRIC PROJECT (FERC NO. 2266)
NEVADA IRRIGATION DISTRICT, GRASS VALLEY, CALIFORNIA

DATE:	SCALE:	
03-11-2011	1 INCH = 200 FEET	

FERC NO. 2266



REFERENCE COORDINATE METADATA
PROJECTION - STATE PLANE, DATUM - NAD83
ZONE - CA 2, UNITS - U.S. SURVEY FEET
RESERVOIR ELEVATION - NGVD 29

GEOREFERENCE SOURCE DATA
PUBLIC LAND SURVEY SYSTEM FROM THE BUREAU OF LAND MANAGEMENT
CA STATE OFFICE (SEPTEMBER, 2010)
ALL SECTIONS SHOWN ARE IN THE MOUNT DIABLO B&M

BASE MAP DATA SOURCE
ROADS: ESRI 9.3 (TELE ATLAS), RESERVOIR: DIGITIZED FROM USDA NAIP AERIAL IMAGERY,
RIVER: USGS NHD (MODIFIED TO MATCH USDA NAIP AERIAL IMAGERY),
PROJECT FEATURES: DIGITIZED FROM USDA NAIP AERIAL IMAGERY

STATE OF MAINE
STEPHEN W. EVERETT 2161
PROFESSIONAL LAND SURVEYOR

SURVEYORS STATEMENT

THE PURPOSE OF THIS MAP IS TO PROVIDE A GEOREFERENCED VISUAL DEPICTION OF THE LOCATION OF PROJECT FEATURES AND BOUNDARIES BASED ON THE BEST AVAILABLE HISTORICAL DRAWINGS AND DIGITAL REFERENCE SOURCES INCORPORATED INTO THE GEOGRAPHIC INFORMATION SYSTEM (GIS). LOCATIONS HAVE NOT BEEN VERIFIED BY PHYSICAL FIELD SURVEYS AND THIS DRAWING SHOULD NOT BE USED FOR PURPOSES OF DEVELOPING PROPERTY BOUNDARY DESCRIPTIONS.

EXHIBIT G-21

PROJECT BOUNDARY MAP
DUTCH FLAT NO. 2 FOREBAY & AFTERBAY

YUBA-BEAR HYDROELECTRIC PROJECT (FERC NO. 2266)
NEVADA IRRIGATION DISTRICT, GRASS VALLEY, CALIFORNIA

DATE:	SCALE:	
03-11-2011	1 INCH = 200 FEET	

FERC NO. 2266

REFERENCE COORDINATE METADATA
PROJECTION - STATE PLANE, DATUM - NAD83
ZONE - CA 2, UNITS - U.S. SURVEY FEET
RESERVOIR ELEVATION - NGVD 29

GEOREFERENCE SOURCE DATA
PUBLIC LAND SURVEY SYSTEM FROM THE BUREAU OF LAND MANAGEMENT
CA STATE OFFICE (SEPTEMBER, 2010)
ALL SECTIONS SHOWN ARE IN THE MOUNT DIABLO B&M

BASE MAP DATA SOURCE
ROADS: ESRI 9.3 (TELE ATLAS), RESERVOIR: DIGITIZED FROM USDA NAIP AERIAL IMAGERY,
RIVER: USGS NHD (MODIFIED TO MATCH USDA NAIP AERIAL IMAGERY),
PROJECT FEATURES: DIGITIZED FROM USDA NAIP AERIAL IMAGERY

STATE OF MAINE
STEPHEN W. EVERETT
2161
PROFESSIONAL
LAND SURVEYOR

SURVEYORS STATEMENT

THE PURPOSE OF THIS MAP IS TO PROVIDE A GEOREFERENCED VISUAL DEPICTION OF THE LOCATION OF PROJECT FEATURES AND BOUNDARIES BASED ON THE BEST AVAILABLE HISTORICAL DRAWINGS AND DIGITAL REFERENCE SOURCES INCORPORATED INTO THE GEOGRAPHIC INFORMATION SYSTEM (GIS). LOCATIONS HAVE NOT BEEN VERIFIED BY PHYSICAL FIELD SURVEYS AND THIS DRAWING SHOULD NOT BE USED FOR PURPOSES OF DEVELOPING PROPERTY BOUNDARY DESCRIPTIONS.

CONDUIT
200' PROJECT WIDTH
100' ON EITHER SIDE
OF CENTERLINE

CONCRETE BOX FLUME

DRUM-HALSEY JUNCTION 115KV TRANSMISSION LINE

LOWELL HILL RD

"A" ALARM RD

G22-1
N: 2202579
E: 6884727

G22-2
N: 2202614
E: 6887442

G22-3
N: 2205216
E: 6887276

BEAR RIVER

PG&E

NEVADA COUNTY

PLACER COUNTY

BUREAU
OF LAND
MANAGEMENT

NID

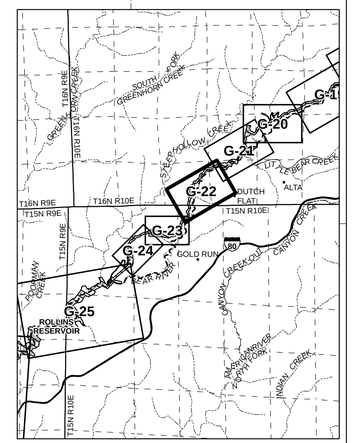
T16N R10E
T15N R10E

DUTCH FLAT CROSSING RD

MATCH LINE, G-20

MATCH LINE, G-18

5 4 33 34



MAGNETIC DECLINATION 14.33° E (8-30-2010)
0 200 400 800 Feet

- REFERENCE POINT
- FLUME
- TRANSMISSION LINE
- ROAD
- PRIMARY PROJECT ACCESS ROAD
- RIVER
- SECTION LINE
- FERC BOUNDARY
- RESERVOIR

LAND OWNERSHIP
- NEVADA IRRIGATION DISTRICT
- PACIFIC GAS & ELECTRIC COMPANY
- BUREAU OF LAND MANAGEMENT
- USDA FOREST SERVICE

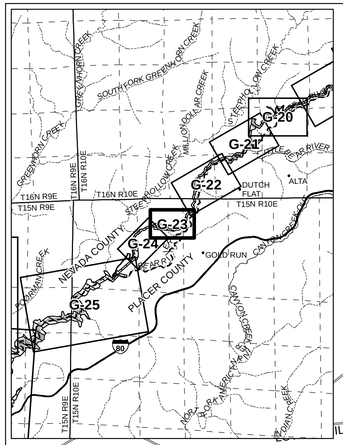
EXHIBIT G-22

PROJECT BOUNDARY MAP
CHICAGO PARK CONDUIT (1 OF 3)

YUBA-BEAR HYDROELECTRIC PROJECT (FERC NO. 2266)
NEVADA IRRIGATION DISTRICT, GRASS VALLEY, CALIFORNIA

DATE:	SCALE:	
03-11-2011	1 inch = 200 feet	

FERC NO. 2266



T15N R10E

PG&E

DRUM-HALSEY JUNCTION 115KV TRANSMISSION LINE

ILL RD

DUTCH FLAT CROSSING RD

G23-1
N: 2198430
E: 6880292

LITTLE YORK BASIN ACCESS RD.

LITTLE YORK BASIN SPILLWAY

LITTLE YORK BASIN
NORMAL MAXIMUM WATER
SURFACE ELEVATION 2,718.18 FT

LITTLE YORK DIVERSION DAM ACCESS RD

BEGIN CANAL

LITTLE YORK BASIN DAM

NID

CONDUIT
200' PROJECT WIDTH
100' ON EITHER SIDE
OF CENTERLINE

MATCH LINE G-24

PG&E

SPILLWAY CHANNEL

G23-2
N: 2196996
E: 6882318

G23-3
N: 2199563
E: 6883615

CONDUIT
200' PROJECT WIDTH
100' ON EITHER SIDE
OF CENTERLINE

MATCH LINE G-22

DUTCH FLAT CROSSING RD

BUREAU
OF LAND
MANAGEMENT

CONCRETE BOX FLUME

NID

BEAR RIVER

NEVADA COUNTY
PLACER COUNTY

MAGNETIC DECLINATION 14.33° E (8-30-2010)

0 75 150 300 450 Feet

- REFERENCE POINT
- CANAL
- FLUME
- TRANSMISSION LINE
- ROAD
- PRIMARY PROJECT ACCESS ROAD
- RIVER
- SECTION LINE
- FERC BOUNDARY
- RESERVOIR

LAND OWNERSHIP

- NEVADA IRRIGATION DISTRICT
- PACIFIC GAS & ELECTRIC COMPANY
- BUREAU OF LAND MANAGEMENT

REFERENCE COORDINATE METADATA
PROJECTION - STATE PLANE, DATUM - NAD83
ZONE - CA 2, UNITS - U.S. SURVEY FEET
RESERVOIR ELEVATION - NGVD 29

GEOREFERENCE SOURCE DATA
PUBLIC LAND SURVEY SYSTEM FROM THE BUREAU OF LAND MANAGEMENT
CA STATE OFFICE (SEPTEMBER, 2010)
ALL SECTIONS SHOWN ARE IN THE MOUNT DIABLO B&M

BASE MAP DATA SOURCE
ROADS: ESRI 9.3 (TELE ATLAS), RESERVOIR: DIGITIZED FROM USDA NAIP AERIAL IMAGERY,
RIVER: USGS NHD (MODIFIED TO MATCH USDA NAIP AERIAL IMAGERY),
PROJECT FEATURES: DIGITIZED FROM USDA NAIP AERIAL IMAGERY

STATE OF MAINE
STEPHEN W. EVERETT 2161
PROFESSIONAL LAND SURVEYOR

SURVEYORS STATEMENT
THE PURPOSE OF THIS MAP IS TO PROVIDE A GEOREFERENCED VISUAL DEPICTION OF THE LOCATION OF PROJECT FEATURES AND BOUNDARIES BASED ON THE BEST AVAILABLE HISTORICAL DRAWINGS AND DIGITAL REFERENCE SOURCES INCORPORATED INTO THE GEOGRAPHIC INFORMATION SYSTEM (GIS). LOCATIONS HAVE NOT BEEN VERIFIED BY PHYSICAL FIELD SURVEYS AND THIS DRAWING SHOULD NOT BE USED FOR PURPOSES OF DEVELOPING PROPERTY BOUNDARY DESCRIPTIONS.

EXHIBIT G-23

PROJECT BOUNDARY MAP
CHICAGO PARK CONDUIT (2 OF 3)

YUBA-BEAR HYDROELECTRIC PROJECT (FERC NO. 2266)
NEVADA IRRIGATION DISTRICT, GRASS VALLEY, CALIFORNIA

DATE:	SCALE:	
03-11-2011	1 INCH = 150 FEET	

FERC NO. 2266

T15N R10E

G24-1
N: 2195886
E: 6877065

BUREAU OF LAND MANAGEMENT

ROAD
40' PROJECT WIDTH
20' ON EITHER SIDE
OF CENTERLINE

CHICAGO PARK FOREBAY RD (YBCPF_001)

MATCH LINE G-25

BEGIN PENSTOCK

CHICAGO PARK FOREBAY DAM

INTAKE STRUCTURE

MICROWAVE STATION

LOW LEVEL OUTLET

SPILLWAY CHANNEL

CONDUIT
200' PROJECT WIDTH
100' ON EITHER SIDE
OF CENTERLINE

CHICAGO PARK FOREBAY
NORMAL MAXIMUM WATER
SURFACE ELEVATION 2,716 FT

G24-2
N: 2195108
E: 6879068

ROAD
40' PROJECT WIDTH
20' ON EITHER SIDE
OF CENTERLINE

SPILLWAY CHANNEL

LOWELL HILL RD

CHICAGO PARK FOREBAY RD (YBCPF_003)

SPILLWAY TO
STEEPHOLLOW CREEK

CANAL

DRUM-HALSEY JUNCTION 115KV TRANSMISSION LINE

LITTLE YORK BASIN ACCESS RD

CONDUIT
200' PROJECT WIDTH
100' ON EITHER SIDE
OF CENTERLINE

CONDUIT
200' PROJECT WIDTH
100' ON EITHER SIDE
OF CENTERLINE

G24-3
N: 2197103
E: 6879662

MATCH LINE G-23

NID

PG&E

REFERENCE COORDINATE METADATA
PROJECTION - STATE PLANE, DATUM - NAD83
ZONE - CA 2, UNITS - U.S. SURVEY FEET
RESERVOIR ELEVATION - NGVD 29

GEOREFERENCE SOURCE DATA
PUBLIC LAND SURVEY SYSTEM FROM THE BUREAU OF LAND MANAGEMENT
CA STATE OFFICE (SEPTEMBER, 2010)
ALL SECTIONS SHOWN ARE IN THE MOUNT DIABLO B&M

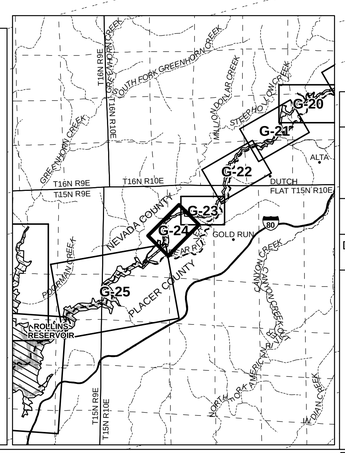
BASE MAP DATA SOURCE
ROADS: ESRI 9.3 (TELE ATLAS), RESERVOIR: DIGITIZED FROM USDA NAIP AERIAL IMAGERY,
RIVER: USGS NHD (MODIFIED TO MATCH USDA NAIP AERIAL IMAGERY),
PROJECT FEATURES: DIGITIZED FROM USDA NAIP AERIAL IMAGERY

STATE OF MAINE
STEPHEN W. EVERETT 2161
PROFESSIONAL LAND SURVEYOR

SURVEYORS STATEMENT
THE PURPOSE OF THIS MAP IS TO PROVIDE A GEOREFERENCED VISUAL DEPICTION OF THE LOCATION OF PROJECT FEATURES AND BOUNDARIES BASED ON THE BEST AVAILABLE HISTORICAL DRAWINGS AND DIGITAL REFERENCE SOURCES INCORPORATED INTO THE GEOGRAPHIC INFORMATION SYSTEM (GIS). LOCATIONS HAVE NOT BEEN VERIFIED BY PHYSICAL FIELD SURVEYS AND THIS DRAWING SHOULD NOT BE USED FOR PURPOSES OF DEVELOPING PROPERTY BOUNDARY DESCRIPTIONS.

- REFERENCE POINT
- CANAL
- PENSTOCK
- TRANSMISSION LINE
- ROAD
- PRIMARY PROJECT ACCESS ROAD
- RIVER
- SECTION LINE
- FERC BOUNDARY
- RESERVOIR

LAND OWNERSHIP
- NEVADA IRRIGATION DISTRICT
- PACIFIC GAS & ELECTRIC COMPANY
- BUREAU OF LAND MANAGEMENT



MAGNETIC DECLINATION 14.33° E (8-30-2010)
0 75 150 300 450 Feet

EXHIBIT G-24

PROJECT BOUNDARY MAP
CHICAGO PARK CONDUIT (3 OF 3)

YUBA-BEAR HYDROELECTRIC PROJECT (FERC NO. 2266)
NEVADA IRRIGATION DISTRICT, GRASS VALLEY, CALIFORNIA

DATE:	SCALE:	
03-11-2011	1 INCH = 150 FEET	

FERC NO. 2266

REFERENCE COORDINATE METADATA
PROJECTION - STATE PLANE, DATUM - NAD83
ZONE - CA 2, UNITS - U.S. SURVEY FEET
RESERVOIR ELEVATION - NGVD 29

GEOREFERENCE SOURCE DATA
PUBLIC LAND SURVEY SYSTEM FROM THE BUREAU OF LAND MANAGEMENT
CA STATE OFFICE (SEPTEMBER, 2010)
ALL SECTIONS SHOWN ARE IN THE MOUNT DIABLO B&M

BASE MAP DATA SOURCE
ROADS: ESRI 9.3 (TELE ATLAS), RESERVOIR: DIGITIZED FROM USDA NAIP AERIAL IMAGERY,
RIVER: USGS NHD (MODIFIED TO MATCH USDA NAIP AERIAL IMAGERY),
PROJECT FEATURES: DIGITIZED FROM USDA NAIP AERIAL IMAGERY

STATE OF MAINE
STEPHEN W. EVERETT 2161
PROFESSIONAL LAND SURVEYOR

SURVEYORS STATEMENT

THE PURPOSE OF THIS MAP IS TO PROVIDE A GEOREFERENCED VISUAL DEPICTION OF THE LOCATION OF PROJECT FEATURES AND BOUNDARIES BASED ON THE BEST AVAILABLE HISTORICAL DRAWINGS AND DIGITAL REFERENCE SOURCES INCORPORATED INTO THE GEOGRAPHIC INFORMATION SYSTEM (GIS). LOCATIONS HAVE NOT BEEN VERIFIED BY PHYSICAL FIELD SURVEYS AND THIS DRAWING SHOULD NOT BE USED FOR PURPOSES OF DEVELOPING PROPERTY BOUNDARY DESCRIPTIONS.

PG&E
BUREAU OF LAND MANAGEMENT
STEEPHOLLOW CREEK
CLAYSOP DECLINE
ROAD
40' PROJECT WIDTH
20' ON EITHER SIDE
OF CENTERLINE
CHICAGO PARK FOREBAY RD (YBCPF_001)
PENSTOCK
CONDUIT
200' PROJECT WIDTH
100' ON EITHER SIDE
OF CENTERLINE
MATCH LINE G-24
CHICAGO PARK POWERHOUSE
CHICAGO PARK POWERHOUSE RD (YBCPH_001)
G25-1
N: 2190989
E: 6868070
BEAR RIVER
NID
G25-3
N: 2190823
E: 6874557
HAUL RD
GOLD RUN RD
SECRET TOWN RD
POORMAN CREEK
T RANCH
BUREAU OF LAND MANAGEMENT
NEVADA COUNTY
PLACER COUNTY
G25-2
N: 2185700
E: 6867943
T15N R9E
T15N R10E
MATCH LINE G-27
SECRET TOWN LN
ROLLINS RESERVOIR
NORMAL MAXIMUM WATER
SURFACE ELEVATION 2,171 FT

0 200 400 800 Feet
MAGNETIC DECLINATION = 14.33° E (8-30-2010)

- REFERENCE POINT
- PENSTOCK
- ROAD
- PRIMARY PROJECT ACCESS ROAD
- RIVER
- SECTION LINE
- FERC BOUNDARY
- RESERVOIR
- COUNTY LINE

LAND OWNERSHIP
- NEVADA IRRIGATION DISTRICT
- PACIFIC GAS & ELECTRIC COMPANY
- BUREAU OF LAND MANAGEMENT

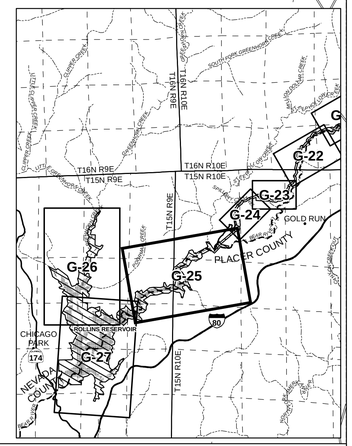


EXHIBIT G- 25

PROJECT BOUNDARY MAP
ROLLINS RESERVOIR, SHEET 1 OF 3

YUBA-BEAR HYDROELECTRIC PROJECT (FERC NO. 2266)
NEVADA IRRIGATION DISTRICT, GRASS VALLEY, CALIFORNIA

DATE:	SCALE:	
03-11-2011	1 INCH = 400 FEET	

FERC NO. 2266

0 200 400 800 Feet

MAGNETIC DECLINATION = 14.35° E (8-30-2010)

T15N R9E

HALLELUJAH LN

YOU BET RD

ARROWHEAD MINE RD

DANDEE HILL RD

GREENHORN CREEK

YOU BET RD

MULBERRY LN

KITKITDIZZE DR

FIFIELD RD

G26-3
N: 2195111
E: 6860209

2 11
3 10

YOU BET RD

POORMAN CREEK

YOU BET RD

ROYAL FLUSH CT

G26-1
N: 2187075
E: 6862703

YOU WIN CT

MATCH LINE G-27

NID

BUREAU OF LAND MANAGEMENT

YOU BET RD

BUREAU OF LAND MANAGEMENT

11 14
10 15

NID

BUREAU OF LAND MANAGEMENT

MARIE LN

FREDERICK WAY

ROLLINS RESERVOIR
NORMAL MAXIMUM WATER
SURFACE ELEVATION 2,171 FT

MAKIKIJA DR

FROLIC MDWS

G26-2
N: 2191104
E: 6857487

GREENHORN CAMPGROUND STORE

GREENHORN CAMPGROUND

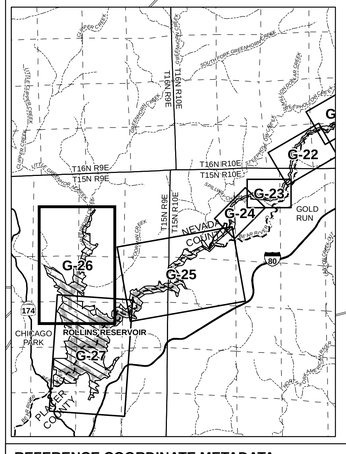
FROLIC MDWS

SONTAG RD

HEAD RANCH RD

GREENHORN ACCESS RD

SHERBLEY RD



REFERENCE COORDINATE METADATA
PROJECTION - STATE PLANE, DATUM - NAD83
ZONE - CA 2, UNITS - U.S. SURVEY FEET
RESERVOIR ELEVATION - NGVD 29

GEOREFERENCE SOURCE DATA
PUBLIC LAND SURVEY SYSTEM FROM THE BUREAU OF LAND MANAGEMENT
CA STATE OFFICE (SEPTEMBER, 2010)
ALL SECTIONS SHOWN ARE IN THE MOUNT DIABLO B&M

BASE MAP DATA SOURCE
ROADS: ESRI 9.3 (TELE ATLAS), RESERVOIR: DIGITIZED FROM USDA NAIP AERIAL IMAGERY,
RIVER: USGS NHD (MODIFIED TO MATCH USDA NAIP AERIAL IMAGERY),
PROJECT FEATURES: DIGITIZED FROM USDA NAIP AERIAL IMAGERY

STATE OF MAINE
STEPHEN W. EVERETT 2161
PROFESSIONAL LAND SURVEYOR

SURVEYORS STATEMENT

THE PURPOSE OF THIS MAP IS TO PROVIDE A GEOREFERENCED VISUAL DEPICTION OF THE LOCATION OF PROJECT FEATURES AND BOUNDARIES BASED ON THE BEST AVAILABLE HISTORICAL DRAWINGS AND DIGITAL REFERENCE SOURCES INCORPORATED INTO THE GEOGRAPHIC INFORMATION SYSTEM (GIS). LOCATIONS HAVE NOT BEEN VERIFIED BY PHYSICAL FIELD SURVEYS AND THIS DRAWING SHOULD NOT BE USED FOR PURPOSES OF DEVELOPING PROPERTY BOUNDARY DESCRIPTIONS.

- REFERENCE POINT
- ROAD
- PRIMARY PROJECT ACCESS ROAD
- RIVER
- SECTION LINE
- FERC BOUNDARY
- RESERVOIR

LAND OWNERSHIP
- NEVADA IRRIGATION DISTRICT
- BUREAU OF LAND MANAGEMENT

EXHIBIT G- 26

PROJECT BOUNDARY MAP
ROLLINS RESERVOIR, SHEET 2 OF 3

YUBA-BEAR HYDROELECTRIC PROJECT (FERC NO. 2266)
NEVADA IRRIGATION DISTRICT, GRASS VALLEY, CALIFORNIA

DATE:	SCALE:	
03-11-2011	1 INCH = 400 FEET	

FERC NO. 2266

0 200 400 800 Feet

MAGNETIC DECLINATION = 14.33° E (8-30-2010)

REFERENCE COORDINATE METADATA
PROJECTION - STATE PLANE, DATUM - NAD83
ZONE - CA 2, UNITS - U.S. SURVEY FEET
RESERVOIR ELEVATION - NGVD 29

GEOREFERENCE SOURCE DATA
PUBLIC LAND SURVEY SYSTEM FROM THE BUREAU OF LAND MANAGEMENT
CA STATE OFFICE (SEPTEMBER, 2010)
ALL SECTIONS SHOWN ARE IN THE MOUNT DIABLO B&M

BASE MAP DATA SOURCE
ROADS: ESRI 9.3 (TELE ATLAS), RESERVOIR: DIGITIZED FROM USDA NAIP AERIAL IMAGERY,
RIVER: USGS NHD (MODIFIED TO MATCH USDA NAIP AERIAL IMAGERY),
PROJECT FEATURES: DIGITIZED FROM USDA NAIP AERIAL IMAGERY

STATE OF MAINE
STEPHEN W. EVERETT
2161
PROFESSIONAL LAND SURVEYOR

SURVEYORS STATEMENT

THE PURPOSE OF THIS MAP IS TO PROVIDE A GEOREFERENCED VISUAL DEPICTION OF THE LOCATION OF PROJECT FEATURES AND BOUNDARIES BASED ON THE BEST AVAILABLE HISTORICAL DRAWINGS AND DIGITAL REFERENCE SOURCES INCORPORATED INTO THE GEOGRAPHIC INFORMATION SYSTEM (GIS). LOCATIONS HAVE NOT BEEN VERIFIED BY PHYSICAL FIELD SURVEYS AND THIS DRAWING SHOULD NOT BE USED FOR PURPOSES OF DEVELOPING PROPERTY BOUNDARY DESCRIPTIONS.

T15N R9E

MATCH LINE G-25

G27-1
N: 2181708
E: 6865259

BUREAU OF LAND MANAGEMENT

NORTON GRADE RD

NID

YOU BET RD

ROLLINS RESERVOIR
NORMAL MAXIMUM WATER
SURFACE ELEVATION 2,171 FT

PLACER COUNTY
NEVADA COUNTY

LONG RAVINE CAMPGROUND

GLEN ELDER RD

ROLLINS LAKE RD

G27-2
N: 2175266
E: 6861209

BARB WIRE RD

TRESTLE POINT LN

ROLLINS DAM SPILLWAY ACCESS RD (YBRDS_001)

PENINSULA CAMPGROUND

G27-3
N: 2181851
E: 6858648

CONNROY PL (YBRMS_001)

MICROWAVE STATION

ORCHARD SPRINGS CAMPGROUND

ROLLINS PH ACCESS RD (YBRPA_001)

SWITCHYARD

ROLLINS POWERHOUSE

PG&E

BEAR RIVER

OLD BRIDGE RD

SPILLWAY CHANNEL

COUNTRY PL

COUNTRY LN

CONNROY PL

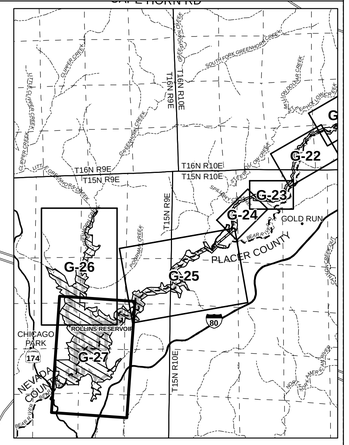
LAKEVIEW DR

MARINA DR

BEAR MEADOW RD

MATCH LINE G-26

ROLLINS VIEW DR



- REFERENCE POINT
- ROAD
- PRIMARY PROJECT ACCESS ROAD
- RIVER
- SECTION LINE
- FERC BOUNDARY
- RESERVOIR
- COUNTY LINE

LAND OWNERSHIP
- NEVADA IRRIGATION DISTRICT
- BUREAU OF LAND MANAGEMENT

EXHIBIT G- 27

PROJECT BOUNDARY MAP
ROLLINS RESERVOIR, SHEET 3 OF 3

YUBA-BEAR HYDROELECTRIC PROJECT (FERC NO. 2266)
NEVADA IRRIGATION DISTRICT, GRASS VALLEY, CALIFORNIA

DATE:	SCALE:	
03-11-2011	1 INCH = 400 FEET	

FERC NO. 2266